

	<p>Patent Specifications: “In addition, the basic monitoring terminal or PC 114, as shown in FIGS. 5 and 15, can be adapted and incorporated to include desktop PCs, notebook PCs, laptops, cell phones, LCD monitors, and satellite monitoring... a cell tower, wi-fi, wi-max, broadband, GPS, navigation, radio frequency interconnected to a central processing unit (cpu), such as cpu 40, a transceiver and monitoring equipment to include but not to be limited to computers, laptops, notebooks, PC's, and cell phones for the receipt and transmission of signals therebetween... or a bomb, explosives or other types of chemical, biological, radiological, or nuclear agents are detected within, upon, affixed or mounted... The cell phone monitor 152 includes the standard keypad functions 154 and more specialized system use (ring tone, email, photos, texting) functions 156 as well as a viewing screen 158. The cell phone detector case 150 includes a recharging cradle or seat 160, a front side 162, a top 164, a bottom 166, and a pair of opposed sides 168. At the back of the cell phone detector case 150 are connections, contacts, and ports for at least an Internet connection 170, a GPS connection 172, and a contact, plug, or port for a power source 174... the integration of portable electronic communication or telecommunication devices such as a cell phone 187a and/or a laptop computer 187b with the monitoring equipment 138 located at a predesignated monitoring site 188...”</p>
<p>a plurality of sensors for detecting at least one chemical, biological, radiological, explosive, nuclear, human, or contraband agent or compound, capable of being disposed within, on, upon or adjacent a multi-sensor detection device, wherein at least one of the sensors is capable of detecting agents of an item of interest (IOI);</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation</p> <p>Patent Specifications: Product grouping 2 (sensors) include, but are not limited to, chemical, biological, radiological, explosive and nuclear detectors, motion sensors, biometric sensors, high security locks, door sensors, disabling locking systems, detection of humans</p> <p>The Department of Homeland Security's Cell-All project. “Cell-All is a program managed by DHS to develop software and hardware that enables smartphones to function as handheld, pervasive environmental sensors... The eventual goal of the project is to embed multiple nanoscale sensors (for environmental chemicals, industrial toxins, radiation, and bioagents) directly into mobile phones...”</p> <p>IPR Final Written Decision. “In the Decision to Institute, we construed certain claim terms. Those constructions are reproduced... “communication device” is construed to mean “monitoring equipment”; and, “<i>built in, embedded</i>” is construed to include “<i>something is included within, incorporated into, disposed within, affixed to, connected to, or mounted to another device, such that it is an integral part of the device</i>”. Patent Owner argues that “[t]he specific devices removed, such as the cell phones and smart phones would be recognized by one of ordinary skill in the art as a type of communication device or monitoring equipment because cell phones and smartphones are devices that are capable of communication and are capable of receiving signals.” “As Patent Owner explains, the added language is broad enough to include the removed items, and is intended to reflect the entire genus of “monitoring equipment” and “communications devices” that “are capable of communication and capable of receiving signals.” Mot. to Amend 4, 5. Thus, the claim has been broadened to not only include the listed species that have been removed, but anything falling within the claimed genus.” UNITED STATES DEPARTMENT OF HOMELAND SECURITY, Petitioner, v. LARRY GOLDEN, Patent Owner. Case IPR2014-00714. Entered: October 1, 2015</p>

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation

IPR Final Written Decision. "In the Decision to Institute, we construed certain claim terms. Those constructions are reproduced... "communication device" is construed to mean "monitoring equipment"; and, "built in, embedded" is construed to include "something is included within, incorporated into, disposed within, affixed to, connected to, or mounted to another device, such that it is an integral part of the device". Patent Owner argues that "[t]he specific devices removed, such as the cell phones and smart phones would be recognized by one of ordinary skill in the art as a type of communication device or monitoring equipment because cell phones and smartphones are devices that are capable of communication and are capable of receiving signals."

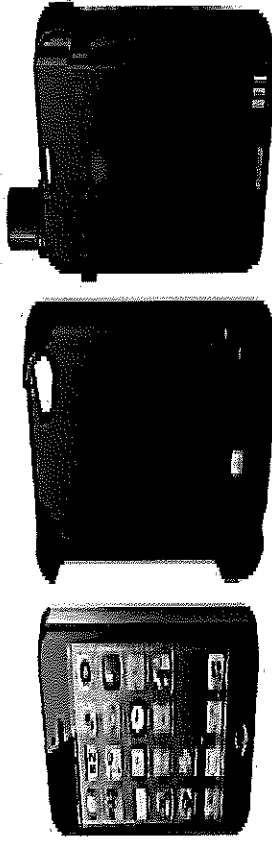
Patent Specifications: "In addition, the basic monitoring terminal or PC 114, as shown in FIGS. 5 and 15, can be adapted and incorporated to include desktop PCs, notebook PCs, laptops, cell phones, LCD monitors, and satellite monitoring... computers, laptops, notebooks, PC's, and cell phones for the receipt and transmission of signals

monitoring equipment of at least one of the products grouped together by common features in a product groupings category of design similarity comprising at least one of a computer terminal, personal computer (PC), laptop, desktop, notebook PC, handheld, cell phone, personal digital assistant (PDA), or smart phone for at least one of a receipt or transmission of signals therebetween;



Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents"

Satellite iPhone. Turn Your iPhone Into a Satellite Phone with Thuraya SatSleeve. The SatSleeve is a case that cradles your iPhone and transforms it into a satellite phone. You can place calls and send text messages whenever you're under Thuraya's satellite footprint, which is just about everywhere in the world. All you have to do is pop the iPhone into its included adapter then slide that into the full SatSleeve. The SatSleeve functions over Bluetooth to wireless provide your iPhone with the total coverage you desire. It has its own dedicated emergency button. If you're ever in a dangerous situation, one press sends a call out to a predetermined number of your choice for help. It works even when your iPhone is out of the SatSleeve. It comes with its own built-in rechargeable battery, so it can recharge your iPhone.



at least one satellite or at least one cell phone tower capable of signal communication between the multi-sensor detection device and the monitoring equipment;

Satellite mobile phones: Utilize satellites to communicate with landline, cellular, or other satellite phones in most regions of the world. Responders use satellite mobile phones for emergency communications in order to coordinate response and recovery efforts in remote areas, where there are no landline or cellular telephone networks, or in areas where existing networks are damaged or overloaded during a natural disaster (e.g., severe weather or earthquake) or a manmade incident, including potential chemical, biological, radiological, nuclear, or explosive events. Satellite mobile phones can help maintain command and control functions during an emergency when existing communications networks are not functioning. Satellite mobile phones can communicate with satellite phone systems and transmit the information signals, from voice or Short Message Service (SMS) text, to a receiving mobile phone. The U.S. Department of Homeland Security (DHS) established the System Assessment and Validation for Emergency Responders (SAVER) Program to assist emergency responders.

Patent Specifications: Product grouping 4 (monitoring & communication devices) include, but are not limited to, mobile communication devices, wireless communication devices, monitoring sites, desktop personal computers (PCs) laptops, *satellite cell phones*, cell phones, personal digital assistants (PDAs), and *satellite monitoring*. Product grouping 5 (communication methods) include, but are not limited to, Bluetooth, Wi-Fi, Wi-Max, Internet, Ethernet, Broadband, Network Bandwidth, Wireless, Wired, Text Messaging, *Cellular*, *Satellite*...

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation

Internet communication between the multi sensor detection device and the monitoring equipment

Internet for Apple iPhone 11 & iPhone 12 Series: Smartphones connecting to the Internet anytime and anywhere through public Wi-Fi hotspots that connect to the Internet through a shared connection. Mobile Internet is a smaller Internet scaled down to fit the dimensions of a mobile phone. The mobile phone network is an example of a cellular network. A cellular network has a cluster of geographic locations together known as a 'cell' which connect to the Internet through satellites. Each cell has a transmitting tower at its centre through which information is passed to and fro via digital radio waves. Two ways to connect to the internet through your mobile phone – Via a cellular telephone service provider or by using standard Wi-Fi. A Wi-Fi enabled device lets you surf the Web at free Wi-Fi hotspots. Through a cellular service provider, the phone connects to the Internet through data transfer the same way a PC does, but with a wireless link. We can access the same Web applications just like in our PCs if we use a Wireless Application Protocol (WAP)-enabled cell phone. WAP is the universal standard for wireless communications and applications. For operating mobile phone networks, Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA) are the most commonly deployed. GSM and CDMA use different algorithms which allow multiple mobile phone users to share the same digital radio frequency without causing interfering for each other. Cell phones have an in-built antenna which is used to send packets of digital information back and forth with cell-phone towers via radio waves. Mobile phones connect to a cell tower in the area, and instead of connecting to another phone it connects to the Internet and can fetch or retrieve data. Through a cellular service provider, the phone connects to the Internet through data transfer the same way a PC does, but with a wireless link. We can access the same Web applications just like in our PCs if we use a Wireless Application Protocol (WAP)-enabled cell phone. WAP is the universal standard for wireless communications and applications. For operating mobile phone networks, Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA) are the most commonly deployed. GSM and CDMA use different algorithms which allow multiple mobile phone users to share the same digital radio frequency without causing interfering for each other. Cell phones have an in-built antenna which is used to send packets of digital information back and forth with cell-phone towers via radio waves. Mobile phones connect to a cell tower in the area, and instead of connecting to another phone it connects to the Internet and can fetch or retrieve data. Mobile Voice goes in one channel and IP or SMS signaling over Mobile Internet in another. The General Packet Radio Service (GPRS) network provides a gateway to the internet through different frequency channels for uploading and downloading. The transfer of data between a wireless device and the Internet. The main component is Radio frequency (RF) energy.

Patent Specifications: Product grouping 5 (communication methods) include, but are not limited to, Bluetooth, Wi-Fi, Wi-Max, Internet, Ethernet, Broadband, Network Bandwidth, Wireless, Wired, Text Messaging, Cellular, Satellite, Telematics, Wide Area Network (WAN), Wireless Wide Area Network (WWAN), Local Area Network (LAN), Radio Frequency (RF), Broadband Wireless Access (BWA), Global Positioning System (GPS),

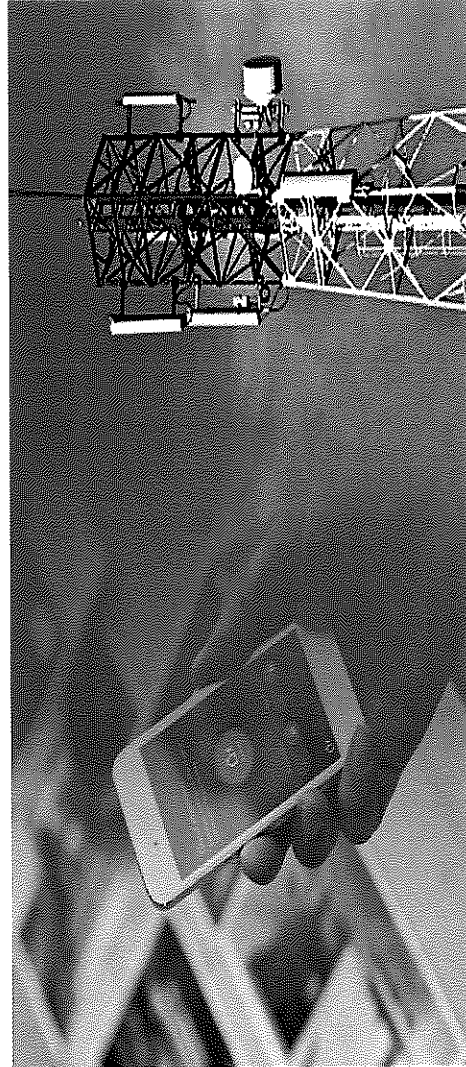
at least one internet connection capable of communication between the multi-sensor detection device and the monitoring equipment;

General Packet Radio Services (GPRS). Global System for Mobile (GSM), Wideband Code Division Multiple Access (W-CDMA), Universal Mobile Telecommunications System (UMTS), Short Message Service (SMS)...

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation

Building on the system he developed with NASA for the DHS Cell-All project, George Yu of Genel Systems Inc., created his NODE+ platform — a cylinder not much bigger than a thumb that can *transmit data* from sensors to a smartphone or other smart device or store it to be uploaded to any computer. The NODE+ operates independently of the cell phone and *transmits* the data it gathers using Bluetooth wireless technology.

GPS Receiver: The primary difference between GPS and Wi-Fi locating technologies is in the method of gathering location data. GPS uses satellites that orbit around the Earth to triangulate a user's location, whereas Wi-Fi locating technology uses relative network signal strength gathered at network access points. The Global Positioning System (GPS) is a government-owned navigation system that operates using radio waves. In order to properly use GPS, you must have a clear line of sight with at least four GPS satellites. Cellular location technology is actually an umbrella term that is used to describe a couple of locating technologies, including Wi-Fi and Sim-based methods. Where GPS lacks, cellular seems to fill in the gaps. Its capabilities shine well in populated areas where cell towers are more densely located. Cellular methods thrive in buildings, cities and densely-populated areas because of how it uses crowdsourced Wi-Fi data.



whereupon a signal sent to a receiver of the multi-sensor detection device for detecting the agents of the item of interest causes a signal that includes at least one of location data or sensor data to be sent to the monitoring equipment;

<p>wherein the multi-sensor detection device for any of one or more products comprising a maritime cargo container, a lock, or the monitoring equipment;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation</p> <p>Apple's iPhone 11 & iPhone 12 Series, is built in any of one or more products listed in any of the plurality of product grouping categories.</p> <p>IPR Final Written Decision. "In the Decision to Institute, we construed certain claim terms. Those constructions are reproduced... "communication device" is construed to mean "monitoring equipment"; and, <u>"built in, embedded" is construed to include "something is included within, incorporated into, disposed within, affixed to, connected to, or mounted to another device, such that it is an integral part of the device"</u></p> <p>Patent Specifications: Product grouping 3 (detector case; modified and adapted) include, but are not limited to, cell phone cases, detector cases of locks, detector cases of tags, detector cases that is [are] mounted to, detector cases that is [are] affixed to, detector cases that is [are] outside of, detector cases that is [are] inside of, and detector cases that is [are] adjacent to...</p> <p>Patent Specifications: "In addition, the basic monitoring terminal or PC 114, as shown in FIGS. 5 and 15, can be adapted and incorporated to include desktop PCs, notebook PCs, laptops, cell phones, LCD monitors, and satellite monitoring... computers, laptops, notebooks, PC's, and cell phones for the receipt and transmission of signals</p>
<p>wherein at least one of a satellite connection, Bluetooth connection, WiFi connection, internet connection, radio frequency (RF) connection, cellular connection, or broadband connection, is in signal communication with a transmitter, a receiver of the monitoring equipment, or transceivers of the products;</p>	<p>Plaintiff believes the Defendant & third-party Apple Inc. literally infringing Plaintiff's claim limitation</p> <p>Patent Specifications: Product grouping 5 (communication methods) include, but are not limited to, Bluetooth, Wi-Fi, Wi-Max, Internet, Ethernet, Broadband, Network Bandwidth, Wireless, Wired, Text Messaging, Cellular, Satellite, Telematics, Wide Area Network (WAN). Wireless Wide Area Network (WWAN), Local Area Network (LAN), Radio Frequency (RF), Broadband Wireless Access (BWA), Global Positioning System (GPS)...</p> <p>IPR Final Written Decision. "In the Decision to Institute, we construed certain claim terms. Those constructions are reproduced... "communication device" is construed to mean "monitoring equipment"; and, <u>"built in, embedded" is construed to include "something is included within, incorporated into, disposed within, affixed to, connected to, or mounted to another device, such that it is an integral part of the device"</u>. Patent Owner argues that "[t]he specific devices removed, such as the cell phones and smart phones would be recognized by one of ordinary skill in the art as a type of communication device or monitoring equipment..."</p>

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents"

"The combination of NFC tags with sensors becomes a new route to realize wireless communication sensed functions, which endows a smartphone with capabilities to rapidly obtain sensing information by simply reading an NFC tag integrated with a sensor" Opperman C.A., Hancke G.P. Using NFC-enabled phones for remote data acquisition and digital control; Proceedings of the IEEE Africon '11; Livingstone, Zambia. 13–15 Sept. 2011; pp. 1–6.

"A joint research group including senior researcher Shinsuke Ishihara at the Frontier Molecules Group, International Center for Materials Nano architectonics (MANA), National Institute for Materials Science (NIMS), and Professor Timothy M. Swager, at the Massachusetts Institute of Technology (MIT), developed a chemical sensing material whose electrical conductivity dramatically increases when exposed to toxic gases. In addition, the group integrated the sensing material into the electronic circuit in a near-field communication (NFC) tag, which is embedded in smart cards... [w]e created a toxic gas sensor whose measurement can be read on smartphones by integrating the chemical sensing material into the electronic circuit present in a commercially available NFC tag. Users can readily determine the presence/absence of toxic gas by holding an NFC-compatible smartphone over a sensor-embedded NFC tag while making sure that communication between the two devices is intact. The sensor is disposable, and 1 g of the chemical sensing material makes 4 million sensors. So, it is feasible to mass-produce the sensor at low cost."

When you use Apple Pay in stores that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that's designed to work only across short distances. Apple Pay is a contactless payment technology for Apple devices. Your debit and credit cards are on your iPhone or Apple Watch, allowing you to pay using your device instead of a card. To accept payments, have customers hold their iPhone, iPad or Apple Watch near the reader until four green lights appear and a chime sound. When you see the check mark on your screen, the transaction is complete.

Patent Specifications: "The multi sensor detection and lock disabling system includes a detector case sized to fit in, upon or adjacent any of the aforescribed products for detecting harmful and dangerous chemical, biological, and radiological agents, compounds and elements... As shown in FIGS. 1-10, the multi sensor detection and lock disabling system 10 includes at least one--and preferably many--detector case 12 that can be placed in, on, upon or adjacent the product..."

at least one tag that is read by the monitoring equipment that is capable of wireless near-field communication to achieve detection of at least one of the explosive agent, the nuclear agent, the contraband agent, the chemical agent, the biological agent, the human agent, or the radiological agent which allows radio frequency (RF) data to be received and/or transferred between the tag and the monitoring equipment.

Patent #: 9,589,439; Independent Claim 22

Apple iPhone 11 & iPhone 12 Series and Apple Watch Series 5 & 6

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation for Plaintiff's CMDC device(s).

Apple iPhone 11 & iPhone 12 Series are believed to be communicating, monitoring, detecting, and controlling (CMDC) devices of at least one of the *new and improved* products grouped together by common features in the product groupings category of design similarity (i.e., computer terminal, personal computer (PC), laptop, desktop, notebook, handheld, cell phone, PDA or smart phone); that comprises, are interconnected to, or integrated with, at least a Central Processing Unit (CPU), that is vital for processing instructions; an Operating System (OS); mobile apps developed for the CMDC devices operating system (OS) such as Android, Apple® iOS®, BlackBerry®, or Windows® Mobile; wireless protocol of Cellular, Bluetooth, Wi-Fi, etc., and CBRNE-H sensors that are placed in, on, upon, or adjacent the *new and improved* CMDC devices; interconnected to the CMDC devices for communication therebetween.

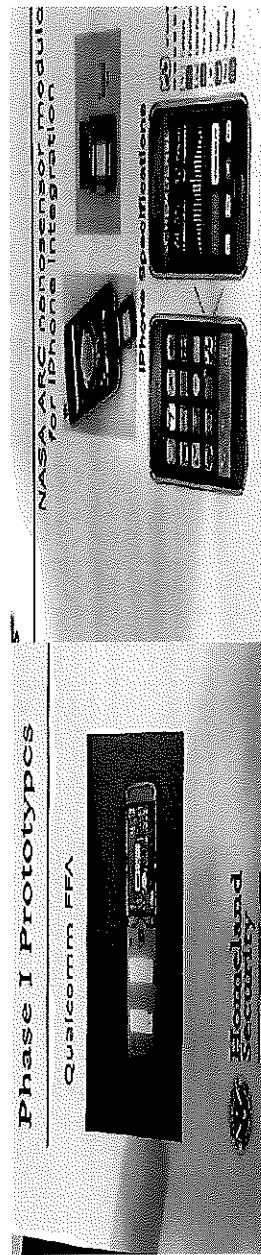
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The Department of Homeland Security's Cell-All project. "Cell-All is a program managed by DHS to develop software and hardware that enables smartphones to function as handheld, pervasive environmental sensors. In the initial research and development phase, engineers miniaturized sensors to detect abnormal levels of potentially dangerous chemicals in the surrounding environment. When dangerous levels are detected, an application on the cell phone should automatically send sensor and location data over the network to a centralized server, which will then contact appropriate agencies and first responders. The eventual goal of the project is to embed multiple nanoscale sensors (for environmental chemicals, industrial toxins, radiation, and bioagents) directly into mobile phones..." "During the development of second-generation prototypes, chemical sensors were separated from the phones, allowing for initial market deployment of the sensors through third-party products, such as sleeves, that could be added to existing phones (U.S. Department of Homeland Security, 2011a). This use of third-party accessory products is intended to speed up the technology's commercial availability so that people can begin using the Cell-All applications with their

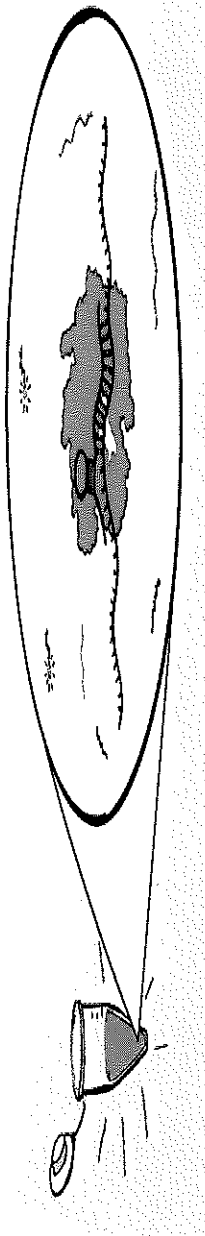
A communication device of at least one of a cell phone, a smart phone, a desktop, a handheld, a personal digital assistant (PDA), a laptop, or a computer terminal, comprising:

current phones before integrated sensors are fully operational and readily available.” Retrieved from: Crowdsourcing urban surveillance: The development of homeland security markets for environmental sensor networks. Torin Monahan & Jennifer T. Mokos: A Department of Communication Studies, The University of North Carolina at Chapel Hill, CB# 3285, 115 Bingham Hall, Chapel Hill, NC 27599-3285, USA; and, a Department of Human & Organizational Development, Vanderbilt University, Peabody #90, 230 Appleton Place, Nashville, TN 37203-5721, USA

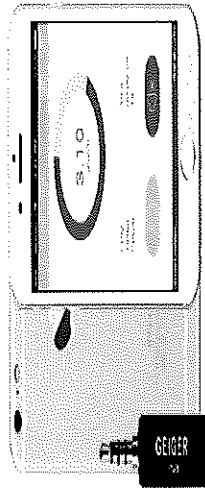
DHS Cell-All Chemical Sensors: Qualcomm first introduced a “built-in, embedded” chemical sensor for the smartphone (picture below). Both Synkera and NASA are independently producing sensors—with Synkera developing a stand-alone sensing card and NASA creating a nanosensor-embedded “sleeve” for phones (picture below); that will detect chemicals in the immediate environment and communicate those readings via Bluetooth, or other protocols, to phones (Li, 2011; Synkera Technologies, 2011).”



CMDC Device Camera Sensor for Biological Detection: “In the diagnostic test (below), a patient sample is mixed with CRISPR Cas13 proteins (purple) and molecular probes (green) which fluoresce, or light up, when cut. When coronavirus RNA is present in the sample, it prompts the CRISPR proteins to snip the molecular probes, causing the whole sample to emit light. This fluorescence can be detected with a cell phone camera.” (*Image courtesy Science at Cal*). The COVID-19 virus is perceived as a biological weapon of mass destruction (BWMD).



CMDC Device Geiger Counter for Radiological Detection: Below is a picture of a “Smart Geiger Counter Nuclear Radiation Dosimeter “X-Ray” and “Gamma” Detector Smartphone Android iOS with App”. Real-time display of measurement results. Ultra-low power consumption. World smallest Geiger Counter (30mm). Compatible with Android and iOS.



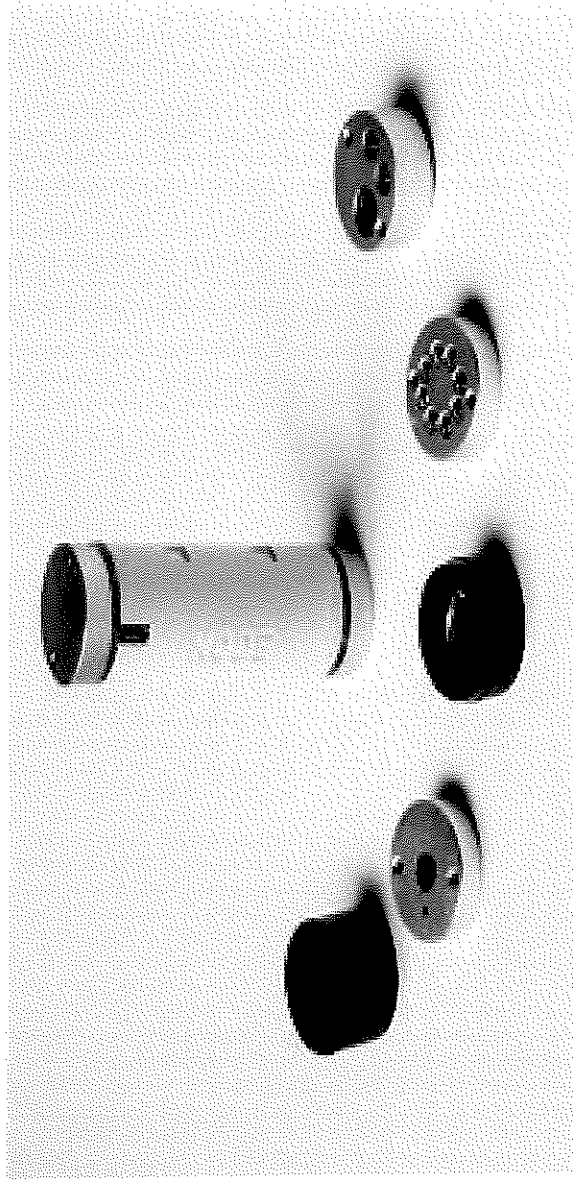
Smartwatch: To use a smartwatch as a stand-alone detection device, you need a smartphone. On the smartphone, the user installs the app that comes with the smartwatch stand-alone detection device, such as Android Wear (Wear OS—operating system from Samsung's Tizen software) or Watch from Apple (i.e., watchOS 7—operating system). By opening the accompanying app on the smartphone and turning on Bluetooth, the user can synchronize the smartwatch to function as a stand-alone detection device with the smartphone.

Central Processing Unit (CPU): The Central Processing Unit (CPU) is the programmable device capable of general-purpose computation. It is the engine of logic, as with the brain, and the core piece of hardware in the Patent Owner's CMDC device (i.e., communication devices, monitoring device; monitoring equipment). The Patent Owner's CPU is capable of arithmetic operations such as add and divide and flow control operations such as conditionals. The Patent Owner's central processing unit (CPU) is the electronic circuitry within the CMDC device that is vital and essential processes and executes program instructions.

Patent Specifications: "In addition, the basic monitoring terminal or PC 114, as shown in FIGS. 5 and 15, can be adapted and incorporated to include desktop PCs, notebook PCs, laptops, cell phones, LCD monitors, and satellite monitoring... a cell tower, wi-fi, wi-max, broadband, GPS, navigation, radio frequency interconnected to a central processing unit (cpu), such as cpu 40, a transceiver and monitoring equipment to include but not to be limited to computers, laptops, notebooks, PC's, and cell phones for the receipt and transmission of signals therebetween... or a bomb, explosives or other types of chemical, biological, radiological, or nuclear agents are detected within, upon, affixed or mounted... The cell phone monitor 152 includes the standard keypad functions 154 and more specialized system use (ring tone, email, photos, texting) functions 156 as well as a viewing screen 158. The cell phone detector case 150 includes a recharging cradle or seat 160, a front side 162, a top 164, a bottom 166, and a pair of opposed sides 168. At the back of the cell phone detector case 150 are connections, contacts, and ports for at least an Internet connection 170, a GPS connection 172, and a contact, plug, or port for a power source 174...

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents"

Interchangeable Sensors: Building on the system he developed with NASA for the DHS Cell-All project, George Yu of Genel Systems Inc., created his NODE+ platform — a cylinder not much bigger than a thumb that can transmit data from sensors to a smartphone or other smart device or store it to be uploaded to any computer. The NODE+ operates independently of the cell phone and transmits the data it gathers using Bluetooth wireless technology. Variable converted off-the-shelf sensors, such as infrared thermometers, color referencers, motion sensors and barcode readers, into *interchangeable modules* that can be snapped onto either end of smartphone or other smart device, so two modules can be used simultaneously. There is a module for carbon dioxide detection and another that senses carbon monoxide, nitric oxide and other gases. "Using a common platform for multiple sensor modules, you save a lot of money," Yu says. The NODE+ is compatible with Android and Apple smart devices.



The NODE+ platform can be outfitted with an array of different sensor modules and can store data or transmit it to a smart device using Bluetooth wireless technology. *Credits: Variable Inc.*

at least one of a chemical sensor, a biological sensor, an explosive sensor, a human sensor, a contraband sensor, or a radiological sensor; that is wired or wireless, capable of being disposed within, on, upon or adjacent the communication device;

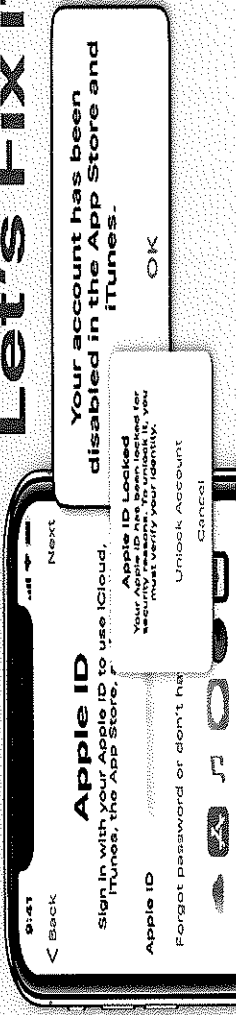
<p>at least one of a central processing unit (CPU), a network processor, or a front-end processor for communication between a host computer and other devices;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation</p> <p>Apple's iPhone 11 & iPhone 12 Series: The CPU, or central processing unit, is responsible for most of the functions on your smartphone, such as running the operating system (Apple's iOS) and relaying touch-screen input. The performance of the CPU, that's a part of the chipset, is vital for processing instructions. The SIP in Apple Watch Series 1 is called SIP and looks superficially identical to the S1, but it includes most of the new features of the Apple S2 except notably for the on-chip GPS functionality. It contains the same dual-core CPU with the same new GPU capabilities as the S2 making it about 50% faster than the S1</p>
<p>a transmitter for transmitting signals and messages to at least one of a multi-sensor detection device, a cell phone detection device, or a locking device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation</p> <p>Apple's iPhone 11 & iPhone 12 Series transmits signals and messages to at least one of plurality product groups.</p> <p>Patent Specifications: Product grouping 1 (storage & transportation) include, but are not limited to, cargo containers, shipping containers, tractor trailers, mail carriers, mail boxes, airplanes, subways, cargo planes, freight train cars... Product grouping 2 (sensors) include, but are not limited to, chemical, biological, radiological, explosive and nuclear detectors, motion sensors, biometric sensors, high security locks, door sensors, disabling locking systems, detection of humans... Product grouping 3 (detector case; modified and adapted) include, but are not limited to, cell phone cases, detector cases of locks, detector cases of tags, detector cases that is [are] mounted to, detector cases that is [are] affixed to, detector cases that is [are] outside of, detector cases that is [are] inside of, and detector cases that is [are] adjacent to... Product grouping 4 (monitoring & communication devices) include, but are not limited to, mobile communication devices, mobile communication units, portable communication devices, portable communication equipment, wired communication devices, wireless communication devices, monitoring sites, monitoring terminals, desktop personal computers (PCs), notebook personal computers (PCs), laptops, cell phones, personal digital assistants (PDAs), handhelds... Product grouping 5 (communication methods) include, but are not limited to, Bluetooth, Wi-Fi, Internet, Wireless, Wired, Text Messaging, Cellular, Satellite, Radio Frequency (RF)... Product grouping 6 (biometrics) include, but are not limited to, fingerprint recognition, voice recognition, face recognition, band geometry, retina scan, iris scan and signature... Product grouping 7 (authorized person) include, but are not limited to, owner, pilot, conductor, captain, drivers of vehicles identified as high security, airport security, police, highway patrol, security guard, military personnel, hazardous material (HAZMAT) personnel, the Central Intelligence Agency (CIA), the Federal Bureau of Investigation (FBI), Secret Service, port security personnel, border security personnel, first responders, monitoring sites and terminal personnel"</p>

<p>a receiver for receiving signals, data or messages from at least one of a multi-sensor detection device, a cell phone detection device, or a locking device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation</p> <p>Apple's iPhone 11 & iPhone 12 Series receives signals, data or messages from at least one of plurality product groups.</p> <p>Patent Specifications: Product grouping 1 (storage & transportation) include, but are not limited to, cargo containers, shipping containers, tractor trailers, mail carriers, mail boxes, airplanes, subways, cargo planes, freight train cars...Product grouping 2 (sensors) include, but are not limited to, chemical, biological, radiological, explosive and nuclear detectors, motion sensors, biometric sensors, high security locks, door sensors, disabling locking systems, detection of humans... Product grouping 3 (detector case; modified and adapted) include, but are not limited to, cell phone cases, detector cases of locks, detector cases of tags, detector cases that is [are] mounted to, detector cases that is [are] affixed to, detector cases that is [are] outside of, detector cases that is [are] inside of, and detector cases that is [are] adjacent to... Product grouping 4 (monitoring & communication devices) include, but are not limited to, mobile communication devices, mobile communication units, portable communication devices, portable communication equipment, wired communication devices, wireless communication devices, monitoring sites, monitoring terminals, desktop personal computers (PCs), notebook personal computers (PCs), laptops, cell phones, personal digital assistants (PDAs), handhelds... Product grouping 5 (communication methods) include, but are not limited to, Bluetooth, Wi-Fi, Internet, Wireless, Wired, Text Messaging, Cellular, Satellite, Radio Frequency (RF), Global Positioning System (GPS)... Product grouping 6 (biometrics) include, but are not limited to, fingerprint recognition, voice recognition, face recognition, band geometry, retina scan, iris scan and signature... Product grouping 7 (authorized person) include, but are not limited to, owner, pilot, conductor, captain, drivers of vehicles identified as high security, airport security, police, highway patrol, security guard, military personnel, hazardous material (HAZMAT) personnel, the Central Intelligence Agency (CIA), the Federal Bureau of Investigation (FBI), Secret Service, port security personnel, border security personnel, first responders, monitoring sites and terminal personnel"</p>
<p>at least one of a satellite connection, Bluetooth connection, WiFi connection, internet connection, cellular connection, long and/or short-range radio frequency (RF) connection, or GPS connection;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation</p> <p>Apple's iPhone 11 & iPhone 12 Series are literally infringing the wireless protocols listed in the claim limitation of a satellite connection, Bluetooth connection, WiFi connection, internet connection, radio frequency (RF) connection, cellular connection, broadband connection, long and short-range radio frequency (RF) connection, or GPS connection;</p>

<p>the communication device being at least a fixed, portable or mobile communication device, equipped with at least one wired or wireless sensor for the detection of humans;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation</p> <p>When you use Apple Pay in stores that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that's designed to work only across short distances. Apple Pay is a contactless payment technology for Apple devices. Your debit and credit cards are on your iPhone or Apple Watch, allowing you to pay using your device instead of a card. To accept payments, have customers hold their iPhone, iPad or Apple Watch near the reader until four green lights appear and a chime sound. When you see the check mark on your screen, the transaction is complete.</p>
<p>the communication device being equipped to receive signals from or send signals to engage (lock), disengage (unlock), or disable (make unavailable) locks;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents" for Plaintiff's "lock disabling system", that is interconnected to, or integrated with, Plaintiff's CMDC device(s).</p> <p>Patent Specifications: "FIG. 1 is a perspective view of the... an automatic/mechanical lock disabler and a fingerprint biometric lock with disabler... FIG. 14 is a representative schematic view of the... lock disabling system of the present invention illustrating interconnection of the... fingerprint biometric lock with disabler for engaging and disengaging the fingerprint biometric lock as part of the process of detection and safeguarding the public... The fingerprint biometric lock with disabler 62 is interconnected to the cpu 40... for receiving transmissions therefrom after detection... has occurred so that the lock... can be locked or disabled. Moreover, resetting of the fingerprint biometric lock with disabler 62 occurs when the fingerprint of the individual is placed on the fingerprint-matching pad 64, and if a match occurs with a known fingerprint stored by the cpu 40, then the individual can reset the fingerprint biometric lock with disabler 56... a fingerprint that matches stored and authorized fingerprints 102 would indicate an authorized individual, and would allow the individual to disable and disarm 104 the lock... The fingerprint biometric lock with disabler 62 would then be reset 106 after the appropriate safety... and protection measures are completed, and the system 10 would be reset and placed back in the detection mode 108"</p> <p>Example: "If your Apple ID is locked or disabled; if you or someone else enters your password or other account information incorrectly too many times; if your account has been disabled for security reasons; or, if you see one of the following messages, your Apple ID automatically locked to protect your security and you can't sign in to any Apple services: "This Apple ID has been disabled for security reasons"; "You can't sign in because your account was disabled for security reasons"; "This Apple ID has been locked for security reasons", you need to reset your password to regain access. Reset your password: "Use the steps below to reset your password from any trusted iPhone, iPad, iPod touch, or Mac. You can also use a friend or family member's iPhone, iPad, or iPod touch. If that doesn't work, you may not be signed into iCloud on an eligible device or have two-factor authentication enabled for your Apple ID. https://support.apple.com/en-us/HT201487 Apple's iPhone 11 & iPhone 12 Series Security feature: After multiple failed passcode attempts to open</p>

(access) the new and improved cell phone, the device will lock or disable the lock on the device and erase all of the device's data.

Apple ID Disabled or Locked? Let's Fix it!

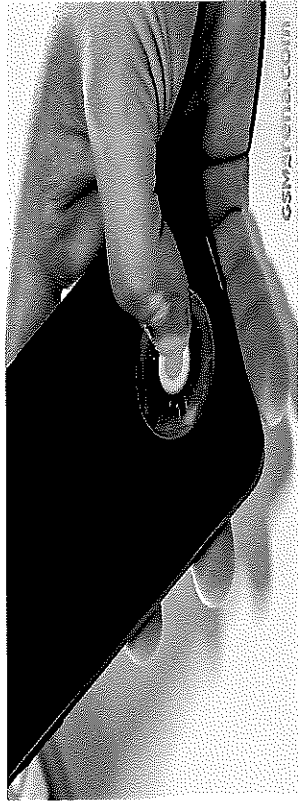


Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation

Patent Specifications: "FIG. 1 is a perspective view of the... an automatic/mechanical lock disabler and a fingerprint biometric lock with disabler... FIG. 14 is a representative schematic view of the... lock disabling system of the present invention illustrating interconnection of the... fingerprint biometric lock with disabler for engaging and disengaging the fingerprint biometric lock as part of the process of detection and safeguarding the public... The fingerprint biometric lock with disabler 62 is interconnected to the cpu 40... for receiving transmissions therefrom after detection... has occurred so that the lock... can be locked or disabled. Moreover, resetting of the fingerprint biometric lock with disabler 62 occurs when the fingerprint of the individual is placed on the fingerprint-matching pad 64

the communication device being equipped with biometrics that incorporates at least one of a fingerprint recognition or a face recognition to at least one of gain access to the device or to prevent unauthorized use;

Touch ID: Touch ID is Apple's fingerprint sensor built-in to the Home button that first debuted with the iPhone 5s. A year later Touch ID became an integral part of Apple Pay that launched just after the iPhone 6 and 6 Plus and also came to the iPad Air 2. The first Mac to gain Touch ID was the MacBook Pro with Touch Bar in late 2016.



iPhones in 2021 will come with Face ID and Touch ID under the screen – GSM Arena.com news

Plaintiff believes the Defendant and third-party contractor, Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents"

"The combination of NFC tags with sensors becomes a new route to realize wireless communication sensed functions, which endows a smartphone with capabilities to rapidly obtain sensing information by simply reading an NFC tag integrated with a sensor" Opperman C.A., Hancke G.P. Using NFC-enabled phones for remote data acquisition and digital control; Proceedings of the IEEE Africon '11; Livingstone, Zambia. 13–15 Sept. 2011; pp. 1–6.

"A joint research group including senior researcher Shinsuke Ishihara at the Frontier Molecules Group, International Center for Materials Nano architectonics (MANA), National Institute for Materials Science (NIMS), and Professor Timothy M. Swager, at the Massachusetts Institute of Technology (MIT), developed a chemical sensing material whose electrical conductivity dramatically increases when exposed to toxic gases. In addition, the group integrated the sensing material into the electronic circuit in a near-field communication (NFC) tag, which is embedded in smart cards... [w]e created a toxic gas sensor whose measurement can be read on smartphones by integrating the chemical sensing material into the electronic circuit present in a commercially available NFC tag. Users can readily determine the presence/absence of toxic gas by holding an NFC-compatible smartphone over a sensor-embedded NFC tag while making sure that communication between the two devices is intact. The sensor is disposable, and 1 g of the chemical sensing material makes 4 million sensors. So, it is feasible to mass-produce the sensor at low cost."

When you use Apple Pay in stores that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that's designed to work only across short distances. Apple Pay is a contactless payment technology for Apple devices. Your debit and credit cards are on your iPhone or Apple Watch, allowing you to pay using your device instead of a card. To accept payments, have customers hold their iPhone, iPad or Apple Watch near the reader until four green lights appear and a chime sound. When you see the check mark on your screen, the transaction is complete.

Patent Specifications: "The multi sensor detection and lock disabling system includes a detector case sized to fit in, upon or adjacent any of the aforescribed products for detecting harmful and dangerous chemical, biological, and radiological agents, compounds and elements... As shown in FIGS. 1-10, the multi sensor detection and lock disabling system 10 includes at least one--and preferably many--detector case 12 that can be placed in, on, upon or adjacent the product..."

the communication device being capable of wireless near-field communication (NFC) which allows radio frequency (RF) data to be at least one of received or transferred between the communication device and at least one tag that is read by the communication device;

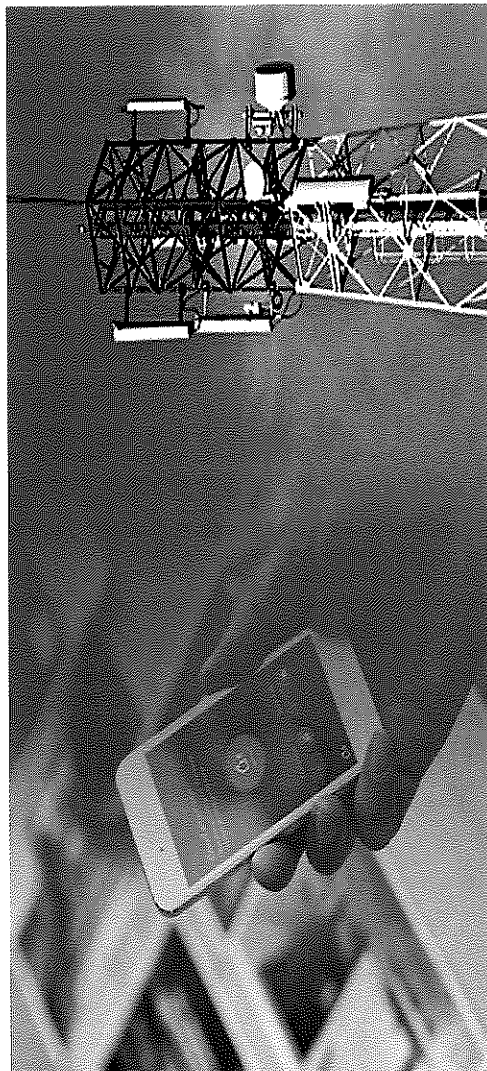
Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation

Building on the system he developed with NASA for the DHS Cell-All project, George Yu of Genel Systems Inc., created his NODE+ platform — a cylinder not much bigger than a thumb that can *transmit data* from sensors to a smartphone or other smart device or store it to be uploaded to any computer. The NODE+ operates independently of the cell phone and *transmits* the data it gathers using Bluetooth wireless technology.

GPS Receiver: The primary difference between GPS and Wi-Fi locating technologies is in the method of gathering location data. GPS uses satellites that orbit around the Earth to triangulate a user's location, whereas Wi-Fi locating technology uses relative network signal strength gathered at network access points. The Global Positioning System (GPS) is a government-owned navigation system that operates using radio waves. In order to properly use GPS, you must have a clear line of sight with at least four GPS satellites. Cellular location technology is actually an umbrella term that is used to describe a couple of locating technologies, including Wi-Fi and Sim-based methods. Where GPS lacks, cellular seems to fill in the gaps. Its capabilities shine well in populated areas where cell towers are more densely located. Cellular methods thrive in buildings, cities and densely-populated areas because of how it uses crowdsourced Wi-Fi data.

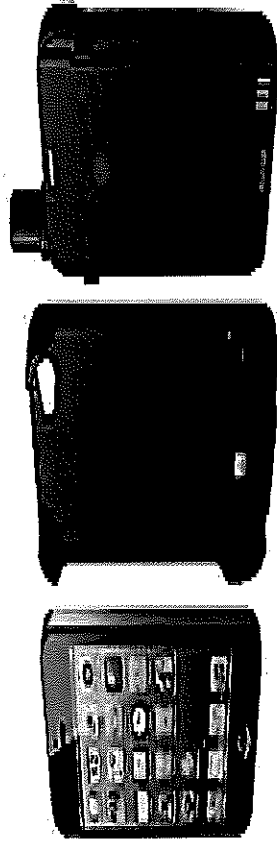
whereupon a signal sent to the receiver of at least one of a multi-sensor detection device, a cell phone detection device, or a locking device from a satellite or a cell phone tower or through at least one of a

Bluetooth connection, a WiFi connection, an internet connection, a cellular connection, a GPS connection, a short range radio frequency (RF) connection, or a long range radio frequency (RF) connection, causes a signal that includes at least one of location data or sensor data to be sent to the communication device; and



Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents"

Satellite iPhone. Turn Your iPhone Into a Satellite Phone with Thuraya SatSleeve. The SatSleeve is a case that cradles your iPhone and transforms it into a satellite phone. You can place calls and send text messages whenever you're under Thuraya's satellite footprint, which is just about everywhere in the world. All you have to do is pop the iPhone into its included adapter then slide that into the full SatSleeve. The SatSleeve functions over Bluetooth to wireless provide your iPhone with the total coverage you desire. It has its own dedicated emergency button. If you're ever in a dangerous situation, one press sends a call out to a predetermined number of your choice for help. It works even when your iPhone is out of the SatSleeve. It comes with its own built-in rechargeable battery, so it can recharge your iPhone.



wherein at least one of a satellite connection, Bluetooth connection, WiFi connection, internet connection, cellular connection, long range radio frequency (RF) connection, or short-range radio frequency (RF) connection, capable of signal communication with the transmitter of the communication device, the receiver of the communication device, or the central processing unit (CPU).

Satellite mobile phones: Utilize satellites to communicate with landline, cellular, or other satellite phones in most regions of the world. Responders use satellite mobile phones for emergency communications in order to coordinate response and recovery efforts in remote areas, where there are no landline or cellular telephone networks, or in areas where existing networks are damaged or overloaded during a natural disaster (e.g., severe weather or earthquake) or a manmade incident, including potential chemical, biological, radiological, nuclear, or explosive events. Satellite mobile phones can help maintain command and control functions during an emergency when existing communications networks are not functioning. Satellite mobile phones can communicate with satellite phone systems and transmit the information signals, from voice or Short Message Service (SMS) text, to a receiving mobile phone. The U.S. Department of Homeland Security (DHS) established the System Assessment and Validation for Emergency Responders (SAVER) Program to assist emergency responders.

Patent Specifications: Product grouping 4 (monitoring & communication devices) include, but are not limited to, mobile communication devices, wireless communication devices, monitoring sites, desktop personal computers (PCs) laptops, satellite cell phones, cell phones, personal digital assistants (PDAs), and satellite monitoring. Product grouping 5 (communication methods) include, but are not limited to, Bluetooth, Wi-Fi, Wi-Max, Internet, Ethernet, Broadband, Network Bandwidth, Wireless, Wired, Text Messaging, Cellular, Satellite...

Patent #: 9,589,439; Independent
Claim 23

Apple iPhone 11 & iPhone 12 Series and Apple Watch Series 5 & 6

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation for Plaintiff's CMDC device(s).

Apple iPhone 11 & iPhone 12 Series are believed to be communicating, monitoring, detecting, and controlling (CMDC) devices of at least one of the *new and improved* products grouped together by common features in the product groupings category of design similarity (i.e., computer terminal, personal computer (PC), laptop, desktop, notebook, handheld, cell phone, PDA or smart phone); that comprises, are interconnected to, or integrated with, at least a Central Processing Unit (CPU), that is vital for processing instructions; an Operating System (OS); mobile apps developed for the CMDC devices operating system (OS) such as Android, Apple® iOS®, BlackBerry®, or Windows® Mobile; wireless protocol of Cellular, Bluetooth, Wi-Fi, etc., and CBRNE-H sensors that are placed in, on, upon, or adjacent the *new and improved* CMDC devices; interconnected to the CMDC devices for communication therebetween.

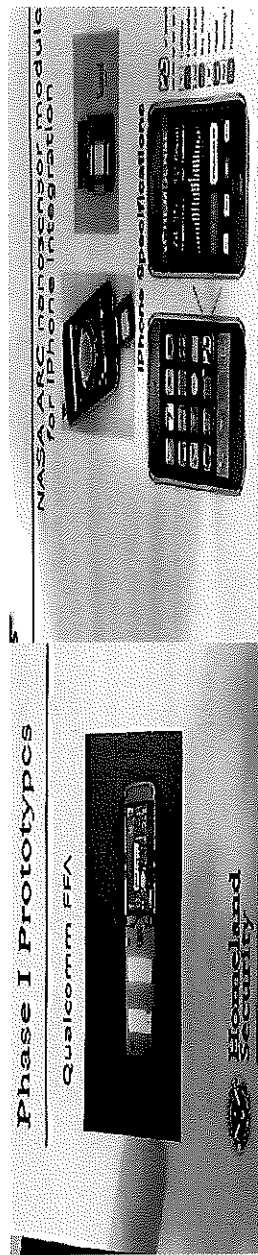
IPR Final Written Decision. "In the Decision to Institute, we construed certain claim terms. Those constructions are reproduced... "communication device" is construed to mean "monitoring equipment"; and, "built in, embedded" is construed to include "something is included within, incorporated into, disposed within, affixed to, connected to, or mounted to another device, such that it is an integral part of the device". Patent Owner argues that "[t]he specific devices removed, such as the cell phones and smart phones would be recognized by one of ordinary skill in the art as a type of communication device or monitoring equipment because cell phones and smartphones are devices that are capable of communication and are capable of receiving signals." "As Patent Owner explains, the added language is broad enough to include the removed items, and is intended to reflect the entire genus of "monitoring equipment" and "communications devices" that "are capable of communication and capable of receiving signals." Mot. to Amend 4, 5. Thus, the claim has been broadened to not only include the listed species that have been removed, but anything falling within the claimed genus." UNITED STATES DEPARTMENT OF HOMELAND SECURITY, Petitioner, v. LARRY GOLDEN, Patent Owner. Case IPR2014-00714. Entered: October 1, 2015

A cell phone comprising:

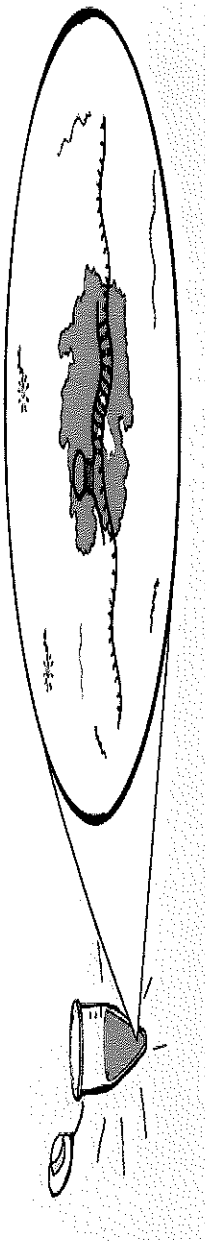
The Department of Homeland Security's Cell-All project. "Cell-All is a program managed by DHS to develop software and hardware that enables smartphones to function as handheld, pervasive environmental sensors. In the initial research and development phase, engineers miniaturized sensors to detect abnormal levels of potentially dangerous chemicals in the surrounding environment. When dangerous levels are detected, an application on the cell phone should automatically send sensor and location data over the network to a centralized server, which will then contact appropriate agencies and first responders. The eventual goal of the project is to embed multiple nanoscale sensors (for environmental chemicals, industrial toxins, radiation, and bioagents) directly into mobile phones..." "During the development of second-generation prototypes, chemical sensors were separated from the phones, allowing for initial market deployment of the sensors through third-party products, such as sleeves, that could be added to existing phones (U.S. Department of Homeland Security, 2011a). This use of third-party accessory products is intended to speed up the technology's commercial availability so that people can begin using the Cell-All applications with their

current phones before integrated sensors are fully operational and readily available.” Retrieved from: Crowdsourcing urban surveillance: The development of homeland security markets for environmental sensor networks. Torin Monahan & Jennifer T. Mokos: A Department of Communication Studies, The University of North Carolina at Chapel Hill, CB# 3285, 115 Bingham Hall, Chapel Hill, NC 27599-3285, USA; and, a Department of Human & Organizational Development, Vanderbilt University, Peabody #90, 230 Appleton Place, Nashville, TN 37203-5721, USA

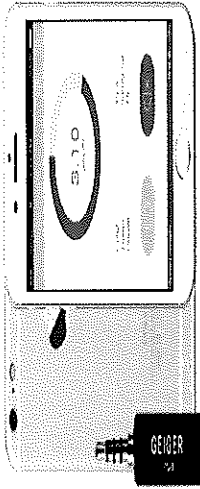
DHS Cell-All Chemical Sensors: Qualcomm first introduced a “built-in, embedded” chemical sensor for the smartphone (picture below). Both Synkera and NASA are independently producing sensors—with Synkera developing a stand-alone sensing card and NASA creating a nanosensor-embedded “sleeve” for phones (picture below); that will detect chemicals in the immediate environment and communicate those readings via Bluetooth, or other protocols, to phones (Li, 2011; Synkera Technologies, 2011).”



CMDC Device Camera Sensor for Biological Detection: “In the diagnostic test (below), a patient sample is mixed with CRISPR Cas13 proteins (purple) and molecular probes (green) which fluoresce, or light up, when cut. When coronavirus RNA is present in the sample, it prompts the CRISPR proteins to snip the molecular probes, causing the whole sample to emit light. This fluorescence can be detected with a cell phone camera.” (*Image courtesy Science at Cal*). The COVID-19 virus is perceived as a biological weapon of mass destruction (BWMD).



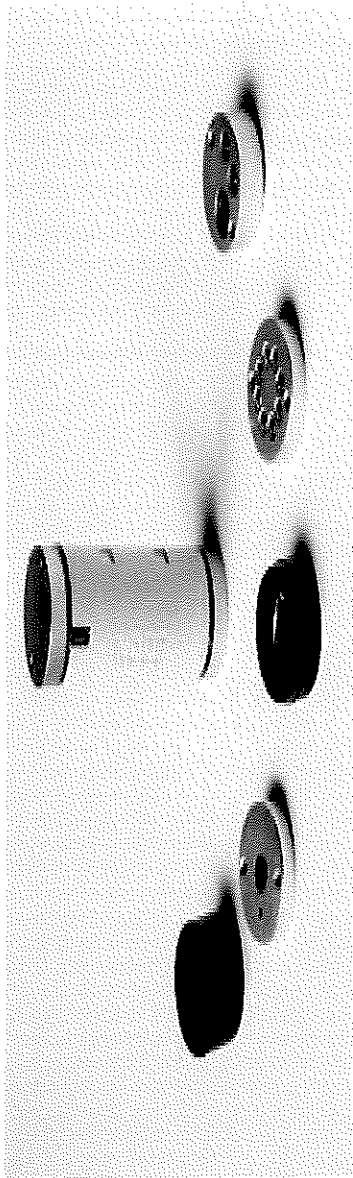
CMDC Device Geiger Counter for Radiological Detection: Below is a picture of a “Smart Geiger Counter Nuclear Radiation Dosimeter “X-Ray” and “Gamma” Detector Smartphone Android iOS with App”. Real-time display of measurement results. Ultra-low power consumption. World smallest Geiger Counter (30mm). Compatible with Android and iOS.



Smartwatch: To use a smartwatch as a stand-alone detection device, you need a smartphone. On the smartphone, the user installs the app that comes with the smartwatch stand-alone detection device, such as Android Wear (Wear OS—operating system from Samsung's Tizen software) or Watch from Apple (i.e., watchOS 7—operating system). By opening the accompanying app on the smartphone and turning on Bluetooth, the user can synchronize the smartwatch to function as a stand-alone detection device with the smartphone.

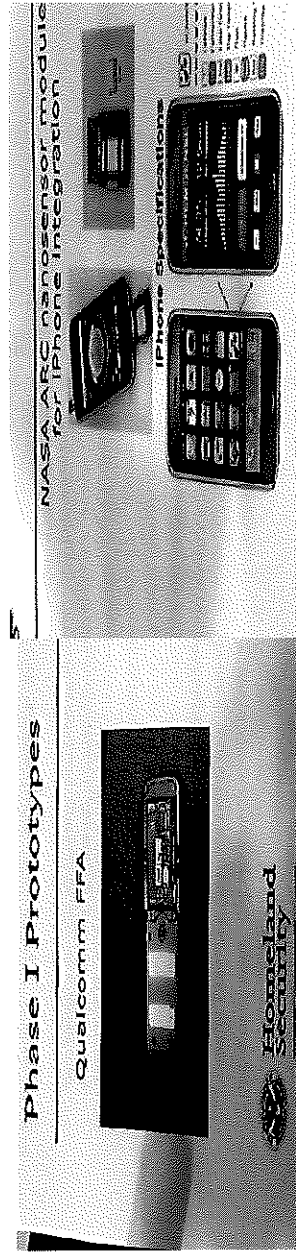
Central Processing Unit (CPU): The Central Processing Unit (CPU) is the programmable device capable of general-purpose computation. It is the engine of logic, as with the brain, and the core piece of hardware in the Patent Owner's CMDC device (i.e., communication devices, monitoring device; monitoring equipment). The Patent Owner's CPU is capable of arithmetic operations such as add and divide and flow control operations such as conditionals. The Patent Owner's central processing unit (CPU) is the electronic circuitry within the CMDC device that is vital and essential processes and executes program instructions.

Patent Specifications: "In addition, the basic monitoring terminal or PC 114, as shown in FIGS. 5 and 15, can be adapted and incorporated to include desktop PCs, notebook PCs, laptops, cell phones, LCD monitors, and satellite monitoring... a cell tower, wi-fi, wi-max, broadband, GPS, navigation, radio frequency interconnected to a central processing unit (cpu), such as cpu 40, a transceiver and monitoring equipment to include but not be limited to computers, laptops, notebooks, PC's, and cell phones for the receipt and transmission of signals therebetween... or a bomb, explosives or other types of chemical, biological, radiological, or nuclear agents are detected within, upon, affixed or mounted... The cell phone monitor 152 includes the standard keypad functions 154 and more specialized system use (ring tone, email, photos, texting) functions 156 as well as a viewing screen 158. The cell phone detector case 150 includes a recharging cradle or seat 160, a front side 162, a top 164, a bottom 166, and a pair of opposed sides 168. At the back of the cell phone detector case 150 are connections, contacts, and ports for at least an Internet connection 170, a GPS connection 172, and a contact, plug, or port for a power source 174...

<p>a central processing unit (CPU) for executing and carrying out the instructions of a computer program;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation</p> <p>Apple's iPhone 11 & iPhone 12 Series: The CPU, or central processing unit, is responsible for most of the functions on your smartphone, such as running the operating system (Apple's iOS) and relaying touch-screen input. The performance of the CPU, that's a part of the chipset, is vital for processing instructions. The SiP in Apple Watch Series 1 is called SiP and looks superficially identical to the S1, but it includes most of the new features of the Apple S2 except notably for the on-chip GPS functionality. It contains the same dual-core CPU with the same new GPU capabilities as the S2 making it about 50% faster than the S1</p>
<p>a transmitter for transmitting signals and messages to a cell phone detection device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents"</p> <p>Interchangeable Sensors: Building on the system he developed with NASA for the DHS Cell-All project, George Yu of Genel Systems Inc., created his NODE+ platform — a cylinder not much bigger than a thumb that can transmit data from sensors to a smartphone or other smart device or store it to be uploaded to any computer. The NODE+ operates independently of the cell phone and transmits the data it gathers using Bluetooth wireless technology. Variable converted off-the-shelf sensors, such as infrared thermometers, color referencers, motion sensors and barcode readers, into <i>interchangeable modules</i> that can be snapped onto either end of smartphone or other smart device, so two modules can be used simultaneously. There is a module for carbon dioxide detection and another that senses carbon monoxide, nitric oxide and other gases. "Using a common platform for multiple sensor modules, you save a lot of money," Yu says. The NODE+ is compatible with Android and Apple smart devices.</p>  <p>The NODE+ platform can be outfitted with an array of different sensor modules and can store data or transmit it to a smart device using Bluetooth wireless technology. <i>Credits: Variable Inc.</i></p>

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation

DHS Cell-All Chemical Sensors: Qualcomm first introduced a "built-in, embedded" chemical sensor for the smartphone (picture below). Both Synkera and NASA are independently producing sensors—with Synkera developing a stand-alone sensing card and NASA creating a nanosensor-embedded "sleeve" for phones (picture below); that will detect chemicals in the immediate environment and communicate those readings via Bluetooth, or other protocols, to phones (Li, 2011; Synkera Technologies, 2011)."



a receiver for receiving signals from the cell phone detection device;

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation

Apple's iPhone 11 & iPhone 12 Series are literally infringing the wireless protocols listed in the claim limitation of a satellite connection, Bluetooth connection, WiFi connection, internet connection, radio frequency (RF) connection, cellular connection, broadband connection, long and short-range radio frequency (RF) connection, or GPS connection, long range radio frequency (RF) connection, short range radio frequency (RF) connection, or GPS connection;

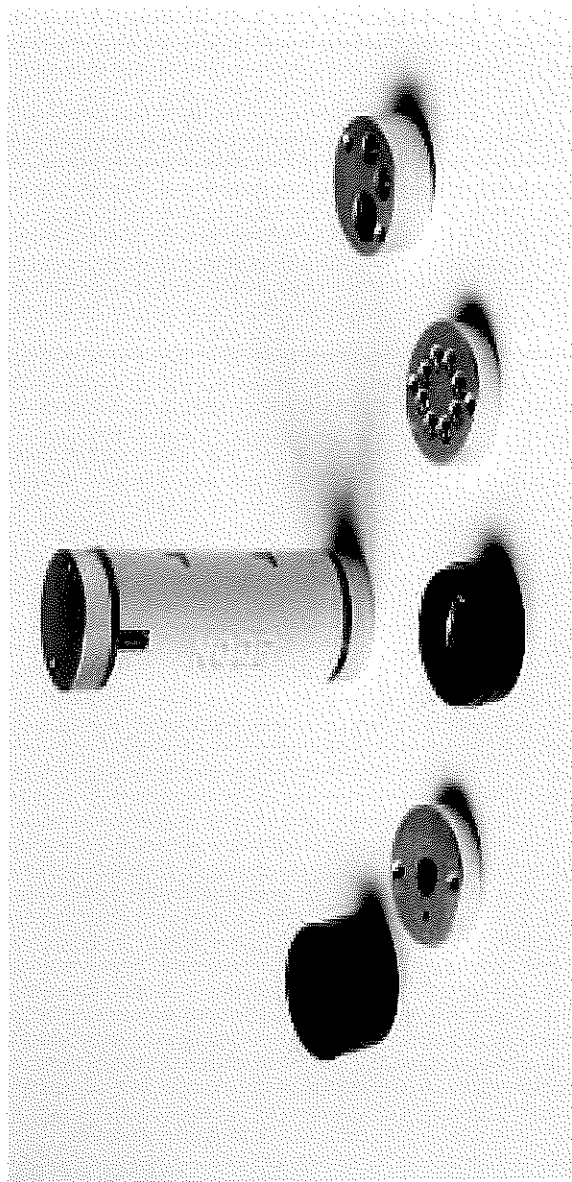
Patent Specifications: Product grouping 4 (monitoring & communication devices) include, but are not limited to, mobile communication devices, wireless communication devices, monitoring sites, desktop personal computers (PCs) laptops, satellite cell phones, cell phones, personal digital assistants (PDAs), and satellite monitoring. Product grouping 5 (communication methods) include, but are not limited to, Bluetooth, Wi-Fi, Wi-Max, Internet, Ethernet, Broadband, Network Bandwidth, Wireless, Wired, Text Messaging, Cellular, Satellite...

at least one of a satellite connection, Bluetooth connection, WiFi connection, internet connection, radio frequency (RF) connection, cellular connection, broadband connection, long range radio frequency (RF) connection, short range radio frequency (RF) connection, or GPS connection;

<p>the cell phone is at least a fixed, portable or mobile communication device interconnected to the cell phone detection device, capable of wired or wireless communication therebetween; and</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation</p> <p>When you use Apple Pay in stores that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that's designed to work only across short distances. Apple Pay is a contactless payment technology for Apple devices. Your debit and credit cards are on your iPhone or Apple Watch, allowing you to pay using your device instead of a card. To accept payments, have customers hold their iPhone, iPad or Apple Watch near the reader until four green lights appear and a chime sound. When you see the check mark on your screen, the transaction is complete.</p>
<p>whereupon the cell phone is interconnected to the cell phone detection device to receive signals or send signals to lock or unlock doors, to activate or deactivate security systems, to activate or deactivate multi-sensor detection systems, or to activate or deactivate the cell phone detection device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation</p> <p>Apple's iPhone 11 & iPhone 12 Series Security feature: The devices are capable of sending signals to lock and unlock doors; activate or deactivate security systems in homes, buildings, or vehicles; detect for Chemical, Biological, Radiological, Nuclear, or Explosive's agents; to stop, stall, or slowdown vehicles, to include driverless land and aerial vehicles; of diagnosing biological and/or chemical medical conditions, and receiving data that the intended task has been accomplished.</p>

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents"

Interchangeable Sensors: Building on the system he developed with NASA for the DHS Cell-All project, George Yu of Genel Systems Inc., created his NODE+ platform — a cylinder not much bigger than a thumb that can transmit data from sensors to a smartphone or other smart device or store it to be uploaded to any computer. The NODE+ operates independently of the cell phone and transmits the data it gathers using Bluetooth wireless technology. Variable converted off-the-shelf sensors, such as infrared thermometers, color referencers, motion sensors and barcode readers, into *interchangeable modules* that can be snapped onto either end of smartphone or other smart device, so two modules can be used simultaneously. There is a module for carbon dioxide detection and another that senses carbon monoxide, nitric oxide and other gases. "Using a common platform for multiple sensor modules, you save a lot of money," Yu says. The NODE+ is compatible with Android and Apple smart devices.

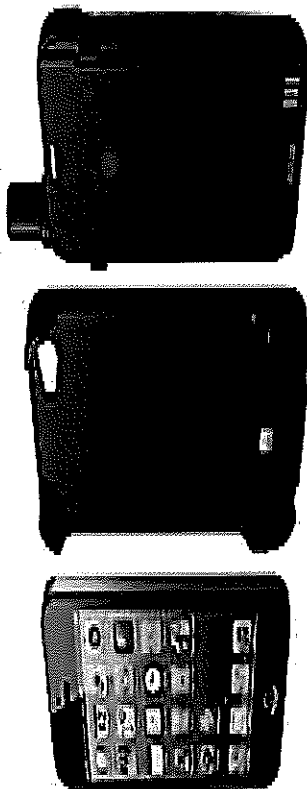


The NODE+ platform can be outfitted with an array of different sensor modules and can store data or transmit it to a smart device using Bluetooth wireless technology. *Credits: Variable Inc.*

at least one of a chemical sensor, a biological sensor, an explosive sensor, a human sensor, a contraband sensor, or a radiological sensor capable of being disposed within, on, upon or adjacent the cell phone;

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents"

Satellite iPhone. Turn Your iPhone Into a Satellite Phone with Thuraya SatSleeve. The SatSleeve is a case that cradles your iPhone and transforms it into a satellite phone. You can place calls and send text messages whenever you're under Thuraya's satellite footprint, which is just about everywhere in the world. All you have to do is pop the iPhone into its included adapter then slide that into the full SatSleeve. The SatSleeve functions over Bluetooth to wireless provide your iPhone with the total coverage you desire. It has its own dedicated emergency button. If you're ever in a dangerous situation, one press sends a call out to a predetermined number of your choice for help. It works even when your iPhone is out of the SatSleeve. It comes with its own built-in rechargeable battery, so it can recharge your iPhone.



Satellite mobile phones: Utilize satellites to communicate with landline, cellular, or other satellite phones in most regions of the world. Responders use satellite mobile phones for emergency communications in order to coordinate response and recovery efforts in remote areas, where there are no landline or cellular telephone networks, or in areas where existing networks are damaged or overloaded during a natural disaster (e.g., severe weather or earthquake) or a manmade incident, including potential chemical, biological, radiological, nuclear, or explosive events. Satellite mobile phones can help maintain command and control functions during an emergency when existing communications networks are not functioning. Satellite mobile phones can communicate with satellite phone systems and transmit the information signals, from voice or Short Message Service (SMS) text, to a receiving mobile phone. The U.S. Department of Homeland Security (DHS) established the System Assessment and Validation for Emergency Responders (SAVER) Program to assist emergency responders.

Patent Specifications: Product grouping 4 (monitoring & communication devices) include, but are not limited to, mobile communication devices, wireless communication devices, monitoring sites, desktop personal computers (PCs) laptops, satellite cell phones, cell phones, personal digital assistants (PDAs), and satellite monitoring. Product grouping 5 (communication methods) include, but are not limited to, Bluetooth, Wi-Fi, Wi-Max, Internet, Ethernet, Broadband, Network Bandwidth, Wireless, Wired, Text Messaging, Cellular, Satellite...

wherein at least one of the satellite connection, Bluetooth connection, WiFi connection, internet connection, radio frequency (RF) connection, cellular connection, broadband connection, long range radio frequency (RF) connection, short range radio frequency (RF) connection, or GPS connection is capable of signal communication with the transmitter or the receiver;

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation

Patent Specifications: "FIG. 1 is a perspective view of the... an automatic/mechanical lock disabler and a fingerprint biometric lock with disabler... FIG. 14 is a representative schematic view of the... lock disabling system of the present invention illustrating interconnection of the... fingerprint biometric lock with disabler for engaging and disengaging the fingerprint biometric lock as part of the process of detection and safeguarding the public... The fingerprint biometric lock with disabler 62 is interconnected to the cpu 40... for receiving transmissions therefrom after detection... has occurred so that the lock... can be locked or disabled. Moreover, resetting of the fingerprint biometric lock with disabler 62 occurs when the fingerprint of the individual is placed on the fingerprint-matching pad 64

Touch ID: Touch ID is Apple's fingerprint sensor built-in to the Home button that first debuted with the iPhone 5s. A year later Touch ID became an integral part of Apple Pay that launched just after the iPhone 6 and 6 Plus and also came to the iPad Air 2. The first Mac to gain Touch ID was the MacBook Pro with Touch Bar in late 2016.



iPhones in 2021 will come with Face ID and Touch ID under the screen – GSMarena.com news

wherein the cell phone is equipped with a biometric lock disabler that incorporates at least one of a fingerprint recognition, voice recognition, face recognition, hand geometry, retina scan, iris scan, or signature such that the cell phone is locked by the biometric lock disabler to prevent unauthorized use; and

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation

Building on the system he developed with NASA for the DHS Cell-All project, George Yu of Genel Systems Inc., created his NODE+ platform — a cylinder not much bigger than a thumb that can *transmit data* from sensors to a smartphone or other smart device or store it to be uploaded to any computer. The NODE+ operates independently of the cell phone and *transmits* the data it gathers using Bluetooth wireless technology.

GPS Receiver: The primary difference between GPS and Wi-Fi locating technologies is in the method of gathering location data. GPS uses satellites that orbit around the Earth to triangulate a user's location, whereas Wi-Fi locating technology uses relative network signal strength gathered at network access points. The Global Positioning System (GPS) is a government-owned navigation system that operates using radio waves. In order to properly use GPS, you must have a clear line of sight with at least four GPS satellites. Cellular location technology is actually an umbrella term that is used to describe a couple of locating technologies, including Wi-Fi and Sim-based methods. Where GPS lacks, cellular seems to fill in the gaps. Its capabilities shine well in populated areas where cell towers are more densely located. Cellular methods thrive in buildings, cities and densely-populated areas because of how it uses crowdsourced Wi-Fi data.



whereupon a signal sent to the receiver of the cell phone detection device from at least one of the chemical sensor, the biological sensor, the explosive sensor, the human sensor, the contraband sensor, or the radiological sensor, causes a signal that includes at least one of location data or sensor data to be sent to the cell phone.

Patent #: 10,163,287; Independent Claim 4

Apple iPhone 11 & iPhone 12 Series and Apple Watch Series 5 & 6

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation for Plaintiff's CMDC device(s).

Apple iPhone 11 & iPhone 12 Series are believed to be communicating, monitoring, detecting, and controlling (CMDC) devices of at least one of the *new and improved* products grouped together by common features in the product groupings category of design similarity (i.e., computer terminal, personal computer (PC), laptop, desktop, notebook, handheld, cell phone, PDA or smart phone); that comprises, are interconnected to, or integrated with, at least a Central Processing Unit (CPU), that is vital for processing instructions; an Operating System (OS); mobile apps developed for the CMDC devices operating system (OS) such as Android, Apple® iOS®, BlackBerry®, or Windows® Mobile; wireless protocol of Cellular, Bluetooth, Wi-Fi, etc., and CBRNE-H sensors that are placed in, on, upon, or adjacent the *new and improved* CMDC devices; interconnected to the CMDC devices for communication therebetween.

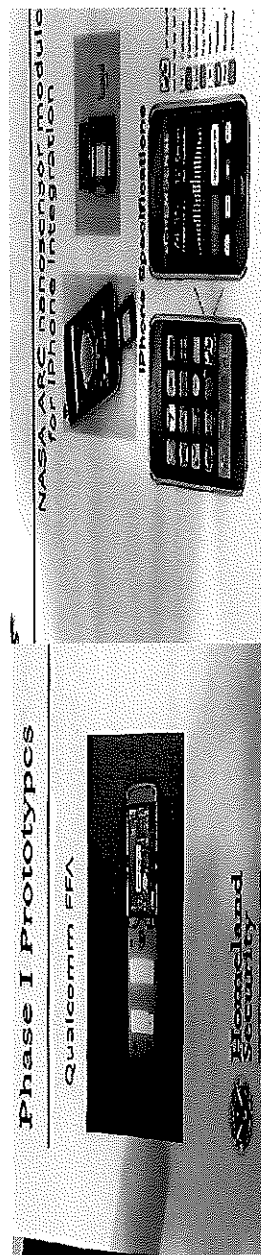
A communication device comprising:

IPR Final Written Decision. "In the Decision to Institute, we construed certain claim terms. Those constructions are reproduced... "communication device" is construed to mean "monitoring equipment"; and, "built in, embedded" is construed to include "something is included within, incorporated into, disposed within, affixed to, connected to, or mounted to another device, such that it is an integral part of the device". Patent Owner argues that "[t]he specific devices removed, such as the cell phones and smart phones would be recognized by one of ordinary skill in the art as a type of communication device or monitoring equipment because cell phones and smartphones are devices that are capable of communication and are capable of receiving signals." "As Patent Owner explains, the added language is broad enough to include the removed items, and is intended to reflect the entire genus of "monitoring equipment" and "communications devices" that "are capable of communication and capable of receiving signals." Mot. to Amend 4, 5. Thus, the claim has been broadened to not only include the listed species that have been removed, but anything falling within the claimed genus." UNITED STATES DEPARTMENT OF HOMELAND SECURITY, Petitioner, v. LARRY GOLDEN, Patent Owner. Case IPR2014-00714. Entered: October 1, 2015

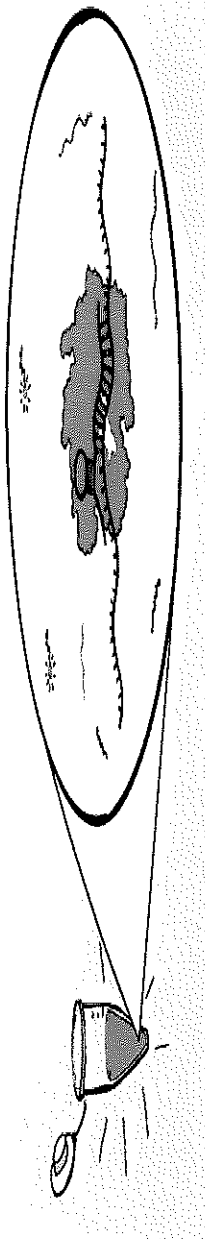
The Department of Homeland Security's Cell-All project. "Cell-All is a program managed by DHS to develop software and hardware that enables smartphones to function as handheld, pervasive environmental sensors. In the initial research and development phase, engineers miniaturized sensors to detect abnormal levels of potentially dangerous chemicals in the surrounding environment. When dangerous levels are detected, an application on the cell phone should automatically send sensor and location data over the network to a centralized server, which will then contact appropriate agencies and first responders. The eventual goal of the project is to embed multiple nanoscale sensors (for environmental chemicals, industrial toxins, radiation, and bioagents) directly into mobile phones..." "During the development of second-generation prototypes, chemical sensors were separated from the phones, allowing for initial market deployment of the sensors through third-party products, such as sleeves, that could be added to existing phones (U.S. Department of Homeland Security, 2011a). This use of third-party accessory products is intended to speed up the technology's commercial availability so that people can begin using the Cell-All applications with their

current phones before integrated sensors are fully operational and readily available.” Retrieved from: Crowdsourcing urban surveillance: The development of homeland security markets for environmental sensor networks. Torin Monahan & Jennifer T. Mokos: A Department of Communication Studies, The University of North Carolina at Chapel Hill, CB# 3285, 115 Bingham Hall, Chapel Hill, NC 27599-3285, USA; and, a Department of Human & Organizational Development, Vanderbilt University, Peabody #90, 230 Appleton Place, Nashville, TN 37203-5721, USA

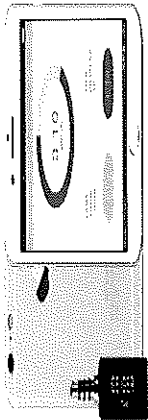
DHS Cell-All Chemical Sensors: Qualcomm first introduced a “built-in, embedded” chemical sensor for the smartphone (picture below). Both Synkera and NASA are independently producing sensors—with Synkera developing a stand-alone sensing card and NASA creating a nanosensor-embedded “sleeve” for phones (picture below); that will detect chemicals in the immediate environment and communicate those readings via Bluetooth, or other protocols, to phones (Li, 2011; Synkera Technologies, 2011).”



CMDC Device Camera Sensor for Biological Detection: “In the diagnostic test (below), a patient sample is mixed with CRISPR Cas13 proteins (purple) and molecular probes (green) which fluoresce, or light up, when cut. When coronavirus RNA is present in the sample, it prompts the CRISPR proteins to snip the molecular probes, causing the whole sample to emit light. This fluorescence can be detected with a cell phone camera.” (*Image courtesy Science at Cal*). The COVID-19 virus is perceived as a biological weapon of mass destruction (BWMD).



CMDC Device Geiger Counter for Radiological Detection: Below is a picture of a “Smart Geiger Counter Nuclear Radiation Dosimeter “X-Ray” and “Gamma” Detector Smartphone Android iOS with App”. Real-time display of measurement results. Ultra-low power consumption. World smallest Geiger Counter (30mm). Compatible with Android and iOS.



Apple iPhone 11 Chipset: Apple A13 Bionic (7 nm+). **Apple iPhone 11 CPU:** Hexa-core (2x2.65 GHz Lightning + 4x1.8 GHz Thunder). **Apple iPhone 12 Chipset:** Apple A14 Bionic (5 nm). **Apple iPhone 12 CPU:** Hexa-core (2x3.1 GHz Firestorm + 4x1.8 GHz Icestorm). **Apple Watch Series 5 Chipset:** Apple S5. **Apple Watch Series 5 CPU:** Dual-core. **Apple Watch Series 6 Chipset:** Apple S6. **Apple Watch Series 6 CPU:** Dual-core

Apple and Samsung's Contract: Apple first used SoCs in early versions of the iPhone and iPod touch. They combine in one package a single ARM-based processing core (CPU), a graphics processing unit (GPU), and other electronics necessary for mobile computing. The APL0098 (also 8900B or S5L8900) is a package on package (PoP) system on a chip (SoC) that was introduced on June 29, 2007, at the launch of the original iPhone. It includes a 412 MHz single-core ARM11 CPU

The Apple A4 is a PoP SoC manufactured by Samsung, the first SoC Apple designed in-house. It combines an ARM Cortex-A8 CPU – also used in Samsung's S5PC110A01 SoC – and a PowerVR SGX 535 graphics processor (GPU), all built on Samsung's 45-nanometer silicon chip fabrication process. The design emphasizes power efficiency. The A4 commercially debuted in 2010, in Apple's iPad tablet, and was later used in the iPhone 4 smartphone.

The Apple A5 is an SoC manufactured by Samsung that replaced the A4. The chip commercially debuted with the release of Apple's iPad 2 tablet in March 2011, followed by its release in the iPhone 4S smartphone later that year. Compared to the A4, the A5 CPU “can do twice the work” and the GPU has “up to nine times the graphics performance”, according to Apple.

The Apple A6 is a PoP SoC introduced on September 12, 2012, at the launch of the iPhone 5. The A6 is manufactured by Samsung on a high-κ metal gate (HKMG) 32 nm process. The A6 is said to use a 1.3 GHz custom Apple-designed ARMv7 based dual-core CPU...

The Apple A9 is a 64-bit ARM-based SoC that first appeared in the iPhone 6S and 6S Plus, which were introduced on September 9, 2015. Apple states that it has 70% more CPU performance and 90% more graphics performance compared to its predecessor, the Apple A8. It is dual sourced, a first for an Apple SoC; it is manufactured by Samsung on their 14 nm FinFET LPE process and by TSMC on their 16 nm FinFET process. It was subsequently included in the first-generation iPhone SE, and the iPad (5th generation). The Apple A9 was the last CPU that Apple manufactured through a contract with Samsung, as all A-series chips after are manufactured by TSMC.

<p>at least one central processing unit (CPU);</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one motion sensor in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one viewing screen for monitoring in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one global positioning system (GPS) connection in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one of an internet connection Wi-Fi connection in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one of a Bluetooth connection, a cellular connection, or a satellite connection in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one locking mechanism in communication with the at least one CPU for locking the communication device, the at least one locking mechanism configured to at least one of engage (lock) the communication device, disengage (unlock) the communication device, or disable (make unavailable) the communication device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one power source comprising at least one of a battery, electrical connection, or wireless connection, to provide power to the communication device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one biometric sensor in communication with the at least one CPU for providing biometric authentication to access the communication device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one or more detectors in communication with the at least one CPU for detecting at least one of a chemical, biological, radiological, or explosive agents;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one radio-frequency near-field communication (NFC) connection in communication with the at least one CPU; and,</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one of a transmitter or a transceiver in communication with the at least one CPU configured to send signals to monitor at least one of a door, a vehicle, or a building, send signals to lock or unlock doors, send signals to control components of a vehicle, send signals to control components of a building, or send signals to detect at least one of a chemical biological, radiological, or explosive agent such that the communication device is capable of communicating, monitoring, detecting, and controlling.</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

Patent #: 10,163,287; Independent
Claim 5

Apple iPhone 11 & iPhone 12 Series and Apple Watch Series 5 & 6

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation for Plaintiff's CMDC device(s).

Apple iPhone 11 & iPhone 12 Series are believed to be communicating, monitoring, detecting, and controlling (CMDC) devices of at least one of the *new and improved* products grouped together by common features in the product groupings category of design similarity (i.e., computer terminal, personal computer (PC), laptop, desktop, notebook, handheld, cell phone, PDA or smart phone); that comprises, are interconnected to, or integrated with, at least a Central Processing Unit (CPU), that is vital for processing instructions; an Operating System (OS); mobile apps developed for the CMDC devices operating system (OS) such as Android, Apple® iOS®, BlackBerry®, or Windows® Mobile; wireless protocol of Cellular, Bluetooth, Wi-Fi, etc., and CBRNE-H sensors that are placed in, on, upon, or adjacent the *new and improved* CMDC devices; interconnected to the CMDC devices for communication therebetween.

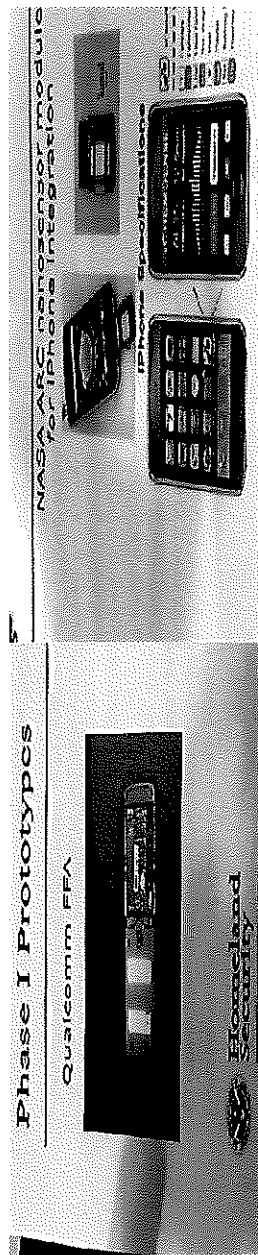
IPR Final Written Decision. "In the Decision to Institute, we construed certain claim terms. Those constructions are reproduced... "communication device" is construed to mean "monitoring equipment"; and, "built in, embedded" is construed to include "something is included within, incorporated into, disposed within, affixed to, connected to, or mounted to another device, such that it is an integral part of the device". Patent Owner argues that "[t]he specific devices removed, such as the cell phones and smart phones would be recognized by one of ordinary skill in the art as a type of communication device or monitoring equipment because cell phones and smartphones are devices that are capable of communication and are capable of receiving signals." "As Patent Owner explains, the added language is broad enough to include the removed items, and is intended to reflect the entire genus of "monitoring equipment" and "communications devices" that "are capable of communication and capable of receiving signals." Mot. to Amend 4, 5. Thus, the claim has been broadened to not only include the listed species that have been removed, but anything falling within the claimed genus." UNITED STATES DEPARTMENT OF HOMELAND SECURITY, Petitioner, v. LARRY GOLDEN, Patent Owner. Case IPR2014-00714. Entered: October 1, 2015

A monitoring device, comprising:

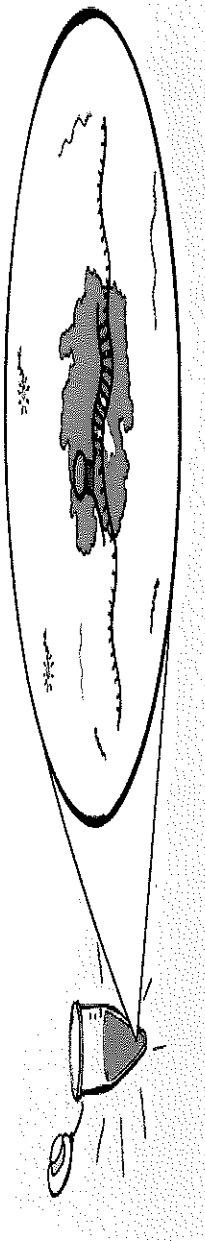
The Department of Homeland Security's Cell-All project. "Cell-All is a program managed by DHS to develop software and hardware that enables smartphones to function as handheld, pervasive environmental sensors. In the initial research and development phase, engineers miniaturized sensors to detect abnormal levels of potentially dangerous chemicals in the surrounding environment. When dangerous levels are detected, an application on the cell phone should automatically send sensor and location data over the network to a centralized server, which will then contact appropriate agencies and first responders. The eventual goal of the project is to embed multiple nanoscale sensors (for environmental chemicals, industrial toxins, radiation, and bioagents) directly into mobile phones..." "During the development of second-generation prototypes, chemical sensors were separated from the phones, allowing for initial market deployment of the sensors through third-party products, such as sleeves, that could be added to existing phones (U.S. Department of Homeland Security, 2011a). This use of third-party accessory products is intended to speed up the technology's commercial availability so that people can begin using the Cell-All applications with their

current phones before integrated sensors are fully operational and readily available.” Retrieved from: Crowdsourcing urban surveillance: The development of homeland security markets for environmental sensor networks. Torin Monahan & Jennifer T. Mokos: A Department of Communication Studies, The University of North Carolina at Chapel Hill, CB# 3285, 115 Bingham Hall, Chapel Hill, NC 27599-3285, USA; and, a Department of Human & Organizational Development, Vanderbilt University, Peabody #90, 230 Appleton Place, Nashville, TN 37203-5721, USA

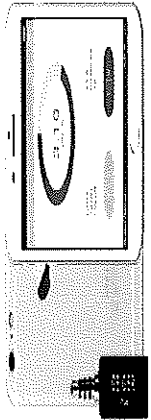
DHS Cell-All Chemical Sensors: Qualcomm first introduced a “built-in, embedded” chemical sensor for the smartphone (picture below). Both Synkera and NASA are independently producing sensors—with Synkera developing a stand-alone sensing card and NASA creating a nanosensor-embedded “sleeve” for phones (picture below); that will detect chemicals in the immediate environment and communicate those readings via Bluetooth, or other protocols, to phones (Li, 2011; Synkera Technologies, 2011).”



CMDC Device Camera Sensor for Biological Detection: “In the diagnostic test (below), a patient sample is mixed with CRISPR Cas13 proteins (purple) and molecular probes (green) which fluoresce, or light up, when cut. When coronavirus RNA is present in the sample, it prompts the CRISPR proteins to snip the molecular probes, causing the whole sample to emit light. This fluorescence can be detected with a cell phone camera.” (*Image courtesy Science at Cal*). The COVID-19 virus is perceived as a biological weapon of mass destruction (BWMD).



CMDC Device Geiger Counter for Radiological Detection: Below is a picture of a “Smart Geiger Counter Nuclear Radiation Dosimeter “X-Ray” and “Gamma” Detector Smartphone Android iOS with App”. Real-time display of measurement results. Ultra-low power consumption. World smallest Geiger Counter (30mm). Compatible with Android and iOS.



Apple iPhone 11 Chipset: Apple A13 Bionic (7 nm+). **Apple iPhone 11 CPU:** Hexa-core (2x2.65 GHz Lightning + 4x1.8 GHz Thunder). **Apple iPhone 12 Chipset:** Apple A14 Bionic (5 nm). **Apple iPhone 12 CPU:** Hexa-core (2x3.1 GHz Firestorm + 4x1.8 GHz Icestorm). **Apple Watch Series 5 Chipset:** Apple S5. **Apple Watch Series 5 CPU:** Dual-core. **Apple Watch Series 6 Chipset:** Apple S6. **Apple Watch Series 6 CPU:** Dual-core

Apple and Samsung's Contract: Apple first used SoCs in early versions of the iPhone and iPod touch. They combine in one package a single ARM-based processing core (CPU), a graphics processing unit (GPU), and other electronics necessary for mobile computing. The APL0098 (also 8900B or S5L8900) is a package on package (PoP) system on a chip (SoC) that was introduced on June 29, 2007, at the launch of the original iPhone. It includes a 412 MHz single-core ARM11 CPU

The Apple A4 is a PoP SoC manufactured by Samsung, the first SoC Apple designed in-house. It combines an ARM Cortex-A8 CPU – also used in Samsung's S5PC110A01 SoC – and a PowerVR SGX 535 graphics processor (GPU), all built on Samsung's 45-nanometer silicon chip fabrication process. The design emphasizes power efficiency. The A4 commercially debuted in 2010, in Apple's iPad tablet, and was later used in the iPhone 4 smartphone.

The Apple A5 is an SoC manufactured by Samsung that replaced the A4. The chip commercially debuted with the release of Apple's iPad 2 tablet in March 2011, followed by its release in the iPhone 4S smartphone later that year. Compared to the A4, the A5 CPU “can do twice the work” and the GPU has “up to nine times the graphics performance”, according to Apple.

The Apple A6 is a PoP SoC introduced on September 12, 2012, at the launch of the iPhone 5. The A6 is manufactured by Samsung on a high-κ metal gate (HKMG) 32 nm process. The A6 is said to use a 1.3 GHz custom Apple-designed ARMv7 based dual-core CPU...

The Apple A9 is a 64-bit ARM-based SoC that first appeared in the iPhone 6S and 6S Plus, which were introduced on September 9, 2015. Apple states that it has 70% more CPU performance and 90% more graphics performance compared to its predecessor, the Apple A8. It is dual sourced, a first for an Apple SoC; it is manufactured by Samsung on their 14 nm FinFET LPE process and by TSMC on their 16 nm FinFET process. It was subsequently included in the first-generation iPhone SE, and the iPad (5th generation). The Apple A9 was the last CPU that Apple manufactured through a contract with Samsung, as all A-series chips after are manufactured by TSMC.

<p>at least one central processing unit (CPU);</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting <i>Winans v. Denmead</i>, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one temperature sensor in communication with the at least one CPU for monitoring temperature;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting <i>Winans v. Denmead</i>, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one motion sensor in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one viewing screen for monitoring in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one global positioning system (GPS) connection in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one of an internet connection or a Wi-Fi connection in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one of a Bluetooth connection, a cellular connection, or a satellite connection in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one locking mechanism in communication with the at least one CPU for locking the communication device, the at least one locking mechanism configured to at least one of engage (lock) the communication device, disengage (unlock) the communication device, or disable (make unavailable) the communication device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one power source comprising at least one of a battery, electrical connection, or wireless connection, to provide power to the communication device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one biometric sensor in communication with the at least once CPU for providing biometric authentication to access the communication device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

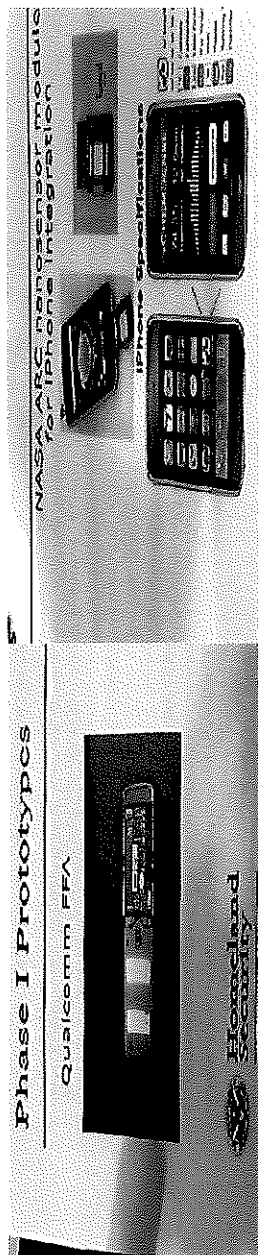
<p>at least one sensor for chemical, biological, or human detection in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>one or more detectors in communication with the at least one CPU for detecting at least one of chemical, biological, radiological, or explosive agents;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one radio-frequency near-field communication (NFC) connection in communication with the at least one CPU; and,</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one of a transmitter or a transceiver in communication with the at least one CPU configured to send signals to monitor at least one of a door, a vehicle, or a building, send signals to lock or unlock doors, send signals to control components of a vehicle, send signals to control components of a building, or send signals to detect at least one of a chemical biological, radiological, or explosive agent such that the communication device is capable of communicating, monitoring, detecting, and controlling.</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

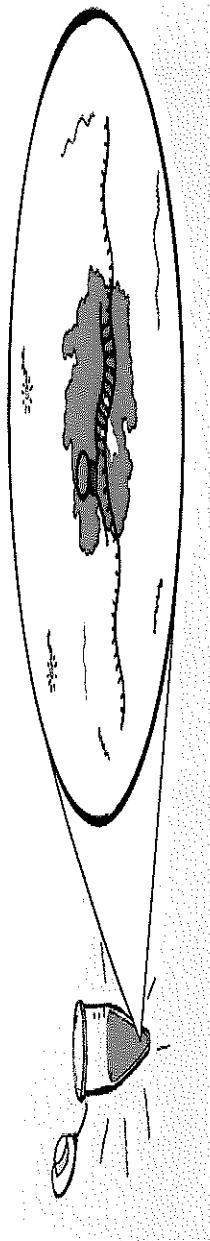
Patent #: 10,163,287; Independent Claim 6	Apple iPhone 11 & iPhone 12 Series and Apple Watch Series 5 & 6
<p>A monitoring equipment, comprising:</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is literally infringing Plaintiff's claim limitation for Plaintiff's CMDC device(s).</p> <p>Apple iPhone 11 & iPhone 12 Series are believed to be communicating, monitoring, detecting, and controlling (CMDC) devices of at least one of the <i>new and improved</i> products grouped together by common features in the product groupings category of design similarity (i.e., computer terminal, personal computer (PC), laptop, desktop, notebook, handheld, cell phone, PDA or smart phone); that comprises, are interconnected to, or integrated with, at least a Central Processing Unit (CPU), that is vital for processing instructions; an Operating System (OS); mobile apps developed for the CMDC devices operating system (OS) such as Android, Apple® iOS®, BlackBerry®, or Windows® Mobile; wireless protocol of Cellular, Bluetooth, Wi-Fi, etc., and CBRNE-H sensors that are placed in, on, upon, or adjacent the <i>new and improved</i> CMDC devices; interconnected to the CMDC devices for communication therebetween.</p> <p>IPR Final Written Decision. “In the Decision to Institute, we construed certain claim terms. Those constructions are reproduced... “communication device” is construed to mean “monitoring equipment”; and, “built in, embedded” is construed to include ““something is included within, incorporated into, disposed within, affixed to, connected to, or mounted to another device, such that it is an integral part of the device”. Patent Owner argues that “[t]he specific devices removed, such as the cell phones and smart phones would be recognized by one of ordinary skill in the art as a type of communication device or monitoring equipment because cell phones and smartphones are devices that are capable of communication and are capable of receiving signals.” “As Patent Owner explains, the added language is broad enough to include the removed items, and is intended to reflect the entire genus of “monitoring equipment” and “communications devices” that “are capable of communication and capable of receiving signals.” Mot. to Amend 4, 5. Thus, the claim has been broadened to not only include the listed species that have been removed, but anything falling within the claimed genus.” UNITED STATES DEPARTMENT OF HOMELAND SECURITY, Petitioner, v. LARRY GOLDEN, Patent Owner. Case IPR2014-00714. Entered: October 1, 2015</p> <p>The Department of Homeland Security's Cell-All project. “Cell-All is a program managed by DHS to develop software and hardware that enables smartphones to function as handheld, pervasive environmental sensors. In the initial research and development phase, engineers miniaturized sensors to detect abnormal levels of potentially dangerous chemicals in the surrounding environment. When dangerous levels are detected, an application on the cell phone should automatically send sensor and location data over the network to a centralized server, which will then contact appropriate agencies and first responders. The eventual goal of the project is to embed multiple nanoscale sensors (for environmental chemicals, industrial toxins, radiation, and bioagents) directly into mobile phones...” “During the development of second-generation prototypes, chemical sensors were separated from the phones, allowing for initial market deployment of the sensors through third-party products, such as sleeves, that could be added to existing phones (U.S. Department of Homeland Security, 2011a). This use of third-party accessory products is intended to speed up the technology's commercial availability so that people can begin using the Cell-All applications with their</p>

current phones before integrated sensors are fully operational and readily available.” Retrieved from: Crowdsourcing urban surveillance: The development of homeland security markets for environmental sensor networks. Torin Monahan & Jennifer T. Mokos: A Department of Communication Studies, The University of North Carolina at Chapel Hill, CB# 3285, 115 Bingham Hall, Chapel Hill, NC 27599-3285, USA; and, a Department of Human & Organizational Development, Vanderbilt University, Peabody #90, 230 Appleton Place, Nashville, TN 37203-5721, USA

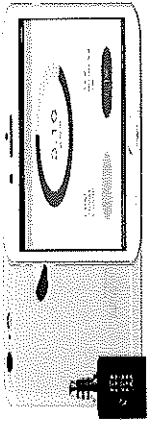
DHS Cell-All Chemical Sensors: Qualcomm first introduced a “built-in, embedded” chemical sensor for the smartphone (picture below). Both Synkera and NASA are independently producing sensors—with Synkera developing a stand-alone sensing card and NASA creating a nanosensor-embedded “sleeve” for phones (picture below); that will detect chemicals in the immediate environment and communicate those readings via Bluetooth, or other protocols, to phones (Li, 2011; Synkera Technologies, 2011).”



CMDC Device Camera Sensor for Biological Detection: “In the diagnostic test (below), a patient sample is mixed with CRISPR Cas13 proteins (purple) and molecular probes (green) which fluoresce, or light up, when cut. When coronavirus RNA is present in the sample, it prompts the CRISPR proteins to snip the molecular probes, causing the whole sample to emit light. This fluorescence can be detected with a cell phone camera.” (*Image courtesy Science at Cal*). The COVID-19 virus is perceived as a biological weapon of mass destruction (BWMD).



CMDC Device Geiger Counter for Radiological Detection: Below is a picture of a “Smart Geiger Counter Nuclear Radiation Dosimeter “X-Ray” and “Gamma” Detector Smartphone Android iOS with App”. Real-time display of measurement results. Ultra-low power consumption. World smallest Geiger Counter (30mm). Compatible with Android and iOS.



Apple iPhone 11 Chipset: Apple A13 Bionic (7 nm+). **Apple iPhone 11 CPU:** Hexa-core (2x2.65 GHz Lightning + 4x1.8 GHz Thunder). **Apple iPhone 12 Chipset:** Apple A14 Bionic (5 nm). **Apple iPhone 12 CPU:** Hexa-core (2x3.1 GHz Firestorm + 4x1.8 GHz Icestorm). **Apple Watch Series 5 Chipset:** Apple S5. **Apple Watch Series 5 CPU:** Dual-core. **Apple Watch Series 6 Chipset:** Apple S6. **Apple Watch Series 6 CPU:** Dual-core

Apple and Samsung's Contract: Apple first used SoCs in early versions of the iPhone and iPod touch. They combine in one package a single ARM-based processing core (CPU), a graphics processing unit (GPU), and other electronics necessary for mobile computing. The APL0098 (also 8900B or S5L8900) is a package on package (PoP) system on a chip (SoC) that was introduced on June 29, 2007, at the launch of the original iPhone. It includes a 412 MHz single-core ARM11 CPU

The Apple A4 is a PoP SoC manufactured by Samsung, the first SoC Apple designed in-house. It combines an ARM Cortex-A8 CPU – also used in Samsung's S5PC110A01 SoC – and a PowerVR SGX 535 graphics processor (GPU), all built on Samsung's 45-nanometer silicon chip fabrication process. The design emphasizes power efficiency. The A4 commercially debuted in 2010, in Apple's iPad tablet, and was later used in the iPhone 4 smartphone.

The Apple A5 is an SoC manufactured by Samsung that replaced the A4. The chip commercially debuted with the release of Apple's iPad 2 tablet in March 2011, followed by its release in the iPhone 4S smartphone later that year. Compared to the A4, the A5 CPU “can do twice the work” and the GPU has “up to nine times the graphics performance”, according to Apple.

The Apple A6 is a PoP SoC introduced on September 12, 2012, at the launch of the iPhone 5. The A6 is manufactured by Samsung on a high-κ metal gate (HKMG) 32 nm process. The A6 is said to use a 1.3 GHz custom Apple-designed ARMv7 based dual-core CPU...

The Apple A9 is a 64-bit ARM-based SoC that first appeared in the iPhone 6S and 6S Plus, which were introduced on September 9, 2015. Apple states that it has 70% more CPU performance and 90% more graphics performance compared to its predecessor, the Apple A8. It is dual sourced, a first for an Apple SoC; it is manufactured by Samsung on their 14 nm FinFET LPE process and by TSMC on their 16 nm FinFET process. It was subsequently included in the first-generation iPhone SE, and the iPad (5th generation). The Apple A9 was the last CPU that Apple manufactured through a contract with Samsung, as all A-series chips after are manufactured by TSMC.

<p>at least one central processing unit (CPU);</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one motion sensor in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one light indicator in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one viewing screen for monitoring in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one global positioning system (GPS) connection in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one of an internet connection or Wi-Fi connection in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one of a Bluetooth connection, a cellular connection, or a satellite connection in communication with the at least one CPU;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one locking mechanism in communication with the at least one CPU for locking the communication device, the at least one locking mechanism configured to at least one of engage (lock) the communication device, disengage (unlock) the communication device, or disable (make unavailable) the communication device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

<p>at least one power source comprising at least one of a battery, electrical connection, or wireless connection, to provide power to the communication device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one biometric sensor in communication with the at least one CPU for providing biometric authentication to access the communication device;</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>

Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting *Winans v. Denmead*, 15 How. 330, 344 (1854))

The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.

at least one or more detectors in communication with the at least one CPU for detecting at least one of a chemical, biological, radiological, or explosive agents;

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Smart Watches

Homeland Security's Smartwatch Will Detect Nuclear Bombs
<https://www.popularmechanics.com/military/research/a18161/homeland-security-smartwatch-detect-nuclear-bombs/>

The US Military's Latest Wearables [Smart Watch] Can Detect Illness Two Days Before You Get Sick
<https://www.defenseone.com/technology/2020/09/militarys-latest-wearables-can-detect-illness-two-days-you-get-sick/168664/>

Studies reveal smartwatch biometrics can detect COVID-19 before symptoms surface: "smartwatches and other wearables measuring biometrics like heart-rate variability have the ability to detect if a person is COVID-19 positive"
<https://www.biometricupdate.com/202101/studies-reveal-smartwatch-biometrics-can-detect-covid-19-before-symptoms-surface>

<p>at least one radio-frequency near-field communication (NFC) connection in communication with the at least one CPU; and,</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>
<p>at least one of a transmitter or a transceiver in communication with the at least one CPU configured to send signals to monitor at least one of a door, a vehicle, or a building, send signals to lock or unlock doors, send signals to control components of a vehicle, send signals to control components of a building, or send signals to detect at least one of a chemical biological, radiological, or explosive agent such that the communication device is capable of communicating, monitoring, detecting, and controlling.</p>	<p>Plaintiff believes the Defendant and third-party contractor; Apple Inc. is infringing Plaintiff's claim limitation under the "doctrine of equivalents". ("substantially the same function in substantially the same way to obtain the same result", quoting Winans v. Denmead, 15 How. 330, 344 (1854))</p> <p>The CPU, which controls all Programmable Logic Controllers (PLCs) consists of two basic sections: the central processing unit (CPU) and the input/output interface system. The input/output system is physically connected to field devices (e.g., sensors, etc.) and provides the interface between the CPU and the information providers (inputs) and controllable devices (outputs). To operate, the CPU "reads" input data from connected field devices through the use of its input interfaces, and then "executes", or performs the control program that has been stored in its memory system. The CPU processes instructions in order to carry out certain functions that make the device operate properly. The CPUs are often described as the brain of computers, smartphones and tablets because of the central role they play in the functioning of your devices.</p> <p>All of the different components that make up a computer's processor have to be condensed to fit in the smartphone, where they exist as a mobile application processor, or a System-on-a-Chip (SoC). Mobile application processors are found in many different mobile devices, such as smartphones, tablets, and navigational devices.</p>